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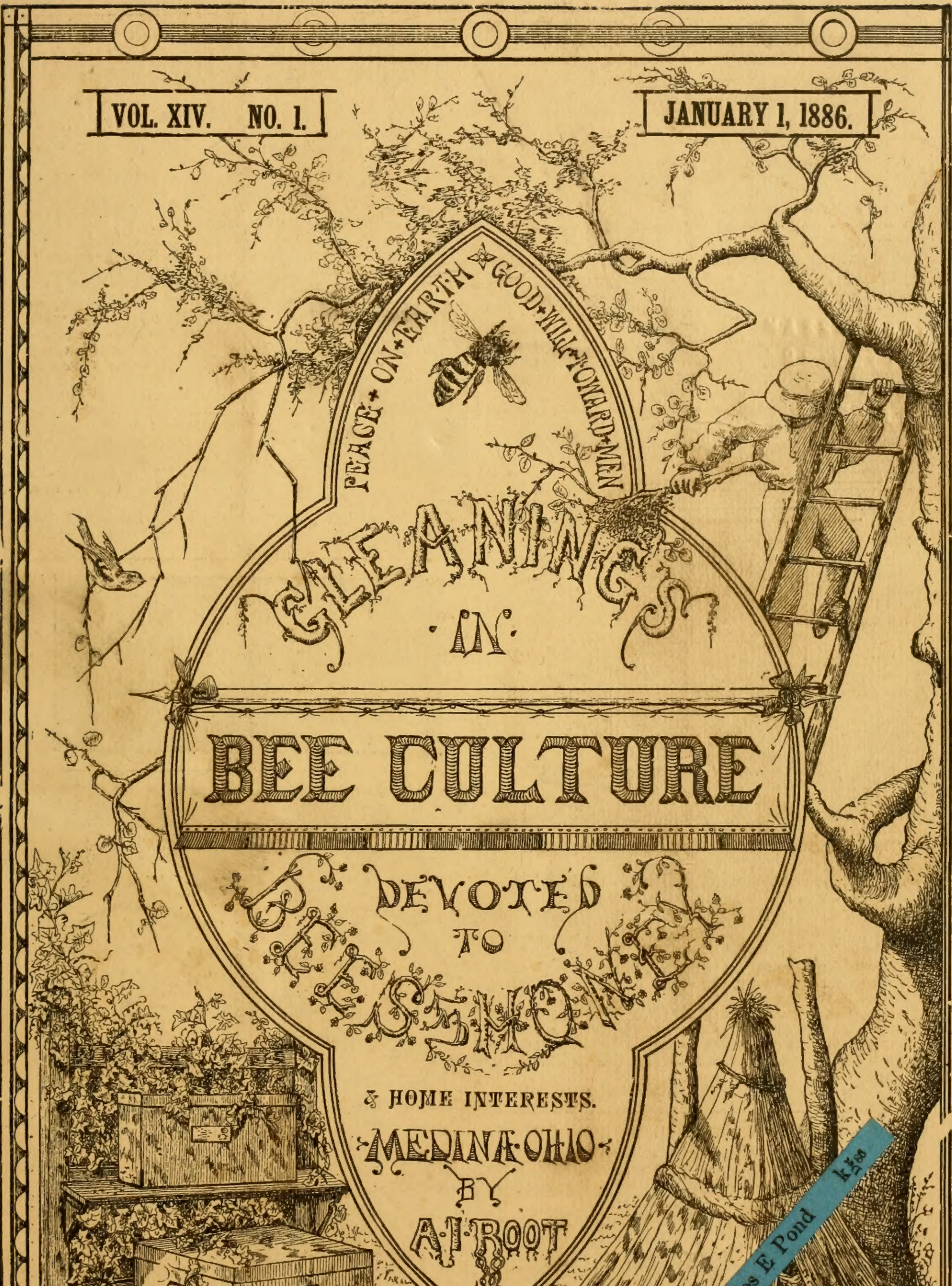
ENTOMOLOGY

VOL. XIV. NO. 1.

JANUARY 1, 1886.



PEACE ON EARTH GOOD WILL TOWARD MEN

GLEANINGS IN BEE CULTURE

DEVOTED TO BEES & HONEY & HOME INTERESTS.

MEDINA, OHIO
BY
A. I. ROOT

TERMS, ONE DOLLAR PER YEAR.

F. A. WHITING, DUNELLEN, N.J.

Jos E Pond k 2/80

ENTERED AT THE POST OFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

ADVERTISEMENTS.

We require that every advertiser satisfy us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them.

Rates for Advertisements.

All advertisements will be inserted at the rate of 20 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be made as follows:

On 10 lines and upward, 3 insertions, 5 per cent; 6 insertions, 10 per cent; 9 insertions, 15 per cent; 12 insertions, 20 per cent; 24 insertions, 25 per cent.

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On 200 lines (whole page), 1 insertion, 15 per cent; 3 insertions, 20 per cent; 6 insertions, 25 per cent; 9 insertions, 30 per cent; 12 insertions, 40 per cent; 24 insertions, 50 per cent. A. I. ROOT.

CLUBBING LIST.

We will send GLEANINGS—

With the American Bee-Journal, W'y	($1.00)	$1.75
With the Bee-keepers' Magazine,	(1.00)	1.75
With the Bee-keepers' Guide,	(.50)	1.40
With the Canadian Bee Journal, W'y	(1.00)	1.90
With all of the above journals,		4.25
With American Agriculturist,	($1.50)	2.25
With American Garden,	($1.00)	1.50
With the British Bee-Journal,	(1.40)	2.25
With Prairie Farmer,	(2.00)	2.75
With Rural New-Yorker,	(2.00)	2.90
With Scientific American,	(3.20)	3.50
With Ohio Farmer,	(1.25)	2.00
With Fruit Recorder and Cottage Gard'r,	(.50)	1.40
With U. S. Official Postal Guide,	(1.50)	2.25
With Sunday-School Times, weekly,	(2.00)	2.25

[*Above Rates include all Postage in U. S. and Canada.*]

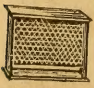
HEADQUARTERS FOR Early Italian & Cyprian Queens.

Imported and home-bred; nuclei and full colonies. For quality and purity, my stock of bees can not be excelled in the United States. I make a specialty of manufacturing the Dunham foundation. Try it. If you wish to purchase Bees or Supplies, send for my new Circular containing directions for introducing queens, remarks on the new races of Bees, etc.

Address

1tfd **Dr. J. P.H. BROWN, Augusta, Ga.**

FLAT - BOTTOM COMB FOUNDATION.



High side-walls, 4 to 14 square feet to the pound. Circular and samples free.

J. VAN DEUSEN & SONS,

4tfd *Sole Manufacturers*,

SPROUT BROOK, MONT. CO., N. Y.

TESTED QUEENS, $2.00. Untested, $1.00. 4-frame nuclei, $3.50 and $4.50. Mississippi wax-extractor, $3.00. OSCAR F. BLEDSOE, Grenada, Miss. 3tfd

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.

2tfdb JNO. VANDERVORT, Laceyville, Pa.

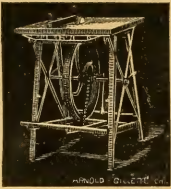
Cash for Beeswax!

Will pay 20c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 28c per lb., or 35c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent. I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

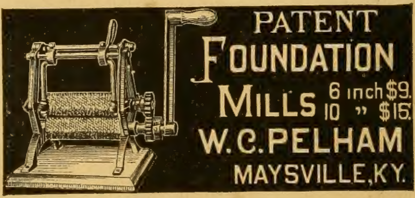
Barnes' Foot-Power Machinery.


ARNOLD GILLETT CO.

Read what J. I. PARENT, of CHARLTON, N. Y., says — "We cut with one of your Combined Machines last winter 50 chaff hives with 7 inch cap, 100 honey racks, 500 broad frames, 2,000 honey-boxes and a great deal of other work. This winter we have double the amount of bee hives, etc., to make and we expect to do it all with this Saw. It will do all you say it will." Catalogue and Price List Free. Address W. F. & JOHN BARNES, 68 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

5tfd



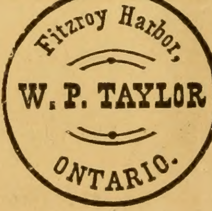
PATENT FOUNDATION MILLS 6 inch $9. 10 " $15.

W. C. PELHAM

MAYSVILLE, KY.

RUBBER STAMPS

DATING, ADDRESSING, BUSINESS, LETTER HEADS, ETC.



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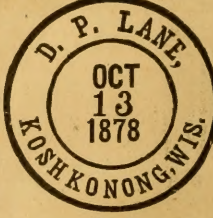

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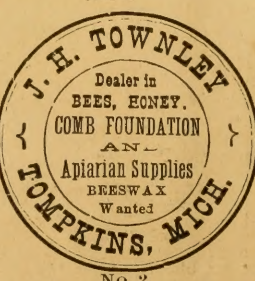

No. 2.

Address only, like No. 1, $1.50; with business card, like No. 2, $2.00; with movable months and figures for dating, like No. 3, $3.00. Full outfit included—pads, ink, box, etc. Sent by mail postpaid. Without ink and pads, 50 cts. less.

Put your stamp on every card, letter, paper, book, or anything else that you may send out by mail or express and you will save yourself and all who do business with you a "world of trouble." I know, you see.

We have those suitable for druggists, grocerymen, hardware dealers, dentists, etc. Send for circular. A. I. ROOT, Medina, O.

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CATALOGUES RECEIVED FOR 1886.

G. B. Lewis & Co., Watertown, Wis., send us an 18-page catalogue, fully illustrated; specialties, bee-hives and section boxes.

Smith & Goodell, Rock Falls, Ill., send an 8-page circular; specialties, hives and section boxes.

We have just printed for P. L. Viallon, Bayou Goula, La., a 4-page supplemental catalogue, containing changes since his catalogue for 1885 was sent out.

For J. D. Rusk, Milwaukee, Wis., we have just printed a 4-page list of bee-supplies.

As we go to press we are printing for G. W. Stanley & Bro., Wyoming, N. Y., a one-page circular, GLEANINGS size, relative to their automatic extractor, and smokers.

For F. Boomhower, Gallupville, N. Y., we are also printing a 12-page list of hives, sections, etc.

FOR SALE. Five pair fine Pekin ducks, at $4.00 per pair.
1tfdb D. D. FARNSWORTH, Clive, Polk Co., Iowa.

FOR SALE.—2000 lbs. of extracted honey, in kegs of 160 lbs. each. Quality of honey first class. I will deliver, freight paid, to parties within 800 miles for 8 and 9 cts. per lb. CHAS. T. GEROULD,
East Smithfield, Bradford Co., Pa.

Recent Additions to the Counter Store.

Postage.] [Pr. of 10, of 100

TEN-CENT COUNTER.

9 | SCRAP-ALBUM. Size, 9x11, 12 pages...... | 80 | 7 50

These neatly made scrap-books are getting to be quite a plaything for the children, and they may be made quite convenient and instructive for the older people. I use one for clipping such articles as I want to preserve from the various agricultural papers, and have them safe and secure; and the book is a handsome piece of furniture, even if it does cost only a dime.

FIFTY-CENT COUNTER.

10 | BUTCHER-KNIFE. J. Russell & Co.'s best hand-forged steel. Blade 9 in. long.. | 4 00 | 35 00

A. I. ROOT, Medina, Ohio.

For Sale. Two steam-engines. The two engines advertised on page 808, issue for Dec. 1, are not sold up to date. The engines must be sold. How much do I hear bid? Engines are all in good running order. I will pay freight one way to any one who will come and buy one or both of said engines. J. B. MURRAY,
1d Ada, Hardin Co., Ohio.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3btfd

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per year, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 1tfd
*S. F. Newman, Norwalk, Huron Co., O. 1tfd
*Wm. Ballantine, Mansfield, Rich. Co., O. 1tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 21tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala. 1tfd
*S. C. Perry, Portland, Ionia Co., Mich. 21tfd
*E. T. Lewis, Toledo, Lucas Co., O. 3-1
S. H. Hutchinson & Son, Claremont, Surry Co., Va. 5-3
*E. Kretchmer, Coburg, Mont. Co., Iowa. 23tfd
D. McKenzie, Camp Parapet, Jeff. Parish, La. 1tfd
Ira D. Alderman, Taylor's Bridge, Samp. Co., N.C. 1tfd
G. F. Smith, Bald Mount, Lack'a Co., Pa, 21tfd
Jos. Byrne, Baton Rouge, Lock Box 5,
East Baton Rouge Par., La. 21tfd

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.
P. L. Viallon, Bayou Goula, Iberville Par., La. 1tfd
C. W. Costellow, Waterboro, York Co., Me. 1-23
Kennedy & Leahy, Higginsville, Laf. Co., Mo. 23tfd
E. T. Lewis, Toledo, Lucas Co., Ohio. 3-1
H. F. Moeller, cor. 5th st. and Western Ave.,
Davenport, Ia. 3-1
E. Kretchmer, Coburg, Montgomery Co., Ia. 23tfd
C. P. Bish, Petrolia, Butler Co., Pa. 15-1

CONTRACTS WANTED
— WITH —
SUPPLY DEALERS
FOR NEXT SEASON'S STOCK OF GOODS.

CHAFF, STORY AND HALF CHAFF, AND SIMPLICITY HIVES, SMOKERS, EXTRACTORS, COMB FOUNDATION, FRAMES, SECTIONS, BOOKS, ETC.,

At wholesale and retail. Unexcelled facilities. Circulars and estimates free. Successors to S. C. & J. P. Watts. Sta. Kerrmore, B. C. C., & S. W. R .R.

WATTS BROS., Murray, Clearfield Co., Pa.
1tfdb.

FOR SALE. Eureka Safety Engine and boiler, 4 horse-power.
1-2d. A. A. FRADENBURG, Port Washington, O.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—The market for comb honey in this city is very inactive, which we attribute to the continued warm weather, in consequence of which, prices are gradually shading. We quote prices at present as follows: Fancy white comb honey, 1-lb. paper cartons, 14@15c; same glassed or unglassed, 13@14c. 2-lb. cartons, glassed, 10½@12c; same unglassed, 12@13c. Fancy buckwheat comb honey, 1-lb. paper cartons, 11@12c; same in 2-pound paper cartons, 9@10c. Extracted, white clover, 6½@8c; buckwheat, 5½@6½.

McCAUL & HILDRETH BROS.,
Dec. 22, 1885. 34 Hudson St., New York, N. Y.

NEW YORK.—*Honey.*—There is still a good demand for all grades of comb honey. Receipts are few and small, as the bulk of honey has been sent to market. We quote: Fancy white, 1-lb. sections, 14@15c; 2-lb. sections, 11@13c. Off grades, 1-lb. sections, 12@13c; 2-lb. sections, 10@11. Buckwheat, 1-lb. sections, 11@12c; 2-lb. sections, 10@11. Extracted, white, 6½@7½; buckwheat, 5½@6c.

THURBER, WHYLAND & CO.,
Dec. 21, 1885. Reade & Hudson Sts., New York.

CHICAGO.—*Honey.*—Our stock of best grade of white comb honey is low; and now that a thaw is promised by the weather-prophets, it would be a good time to ship honey. One-pound sections bring 16c; 1¼ to 1½ to 2 lbs., 13@15. Extracted is also in demand at from 6@8c, according to quality and color. *Beeswax,* 25@26c. R. A. BURNETT,
Dec. 21, 1885. 161 S. Water St., Chicago, Ill.

CINCINNATI.—*Honey.*—There is no change in prices since our last. The stock seems to accumulate on the market, while demand is exceedingly slow. *Beeswax.*—There is a fair demand for beeswax, with no change in prices.

Dec. 22, 1885. CHAS. F. MUTH,
S. E. Cor. Freeman and Central Avenues,
Cincinnati, Ohio.

ST. LOUIS.—*Honey.*—Our honey market is quiet. Southern, in barrels, 5@5½c. Northern, in kegs, about 7c. Comb honey, white-clover, 15@16. Fancy worth more. Dark honey hard to sell — normal. *Beeswax,* 22½@23 for choice.

Dec. 23, 1885. W. T. ANDERSON & CO.,
104 N. 3d Street, St. Louis, Mo.

BOSTON.—*Honey.*—Best 1-pound sections, 14@16; best 2-pound sections, 12@14. Slow sale. No demand for extracted. BLAKE & RIPLEY,
Dec. 21, 1885. 57 Chatham St., Boston, Mass.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db

A. F. STAUFFER & CO., Sterling, Ills.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

NEWFOUNDLAND PUPS

For sale, $10.00 apiece. Beautiful little fellows—children's best friend in times of trouble. Address
3,24,1d. **A. J. NORRIS, CEDAR FALLS, IOWA.**

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS,

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

LOOK HERE!

To introduce my strain of pure bright Italians, equal to any in the United States, I will offer tested queens, $1.00 each; extra fine, selected, $1.50 each; one-frame nucleus, consisting of one extra select queen, one frame of brood, ½ lb. bees, for $2.00. If you want any bees, send me your address on postal and I will send you sample by return mail. Beeswax or honey taken in exchange.

22tfdb **THOMAS HORN,**
Box 691, Sherburne, Chen. Co., N. Y.

Bee-Hives, Sections,
FOUNDATION, ETC.

WITH a capacity of 7000 square feet of floor, we claim the best facilities for furnishing Supplies, in the southeast. **OUR NEW FACTORY IS EQUIPPED** with the best and latest improved Machinery, which enables us to furnish our goods "up to the times," and will furnish **all kinds at very reasonable prices.** Parties needing Supplies would do well to see our Price List before buying.

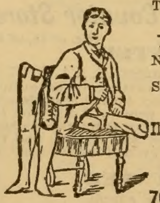
S. VALENTINE & SON,
21tfd **HAGERSTOWN, MD.**

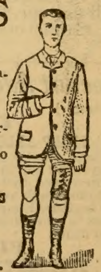
STANLEY'S
AUTOMATIC HONEY - EXTRACTOR

Is acknowledged by all practical bee-keepers to be the best honey-extractor made. Strongly indorsed by A. I. Root, L. C. Root, A. J. Cook, Ira Barber, James Heddon, and hundreds of other prominent bee-keepers throughout the world. Send at once for our new circular, with cut and full description.

Address **C. W. STANLEY & BRO.,**
1d **Wyoming, N. Y.**

LEGS AND ARMS
(ARTIFICIAL)
WITH RUBBER HANDS AND FEET.





The Most Natural, Comfortable and Durable.
THOUSANDS IN USE.
New Patents and Important Improvements.
Special attention given to
SOLDIERS,
Ill. Pamphlet of 160 Pages
SENT FREE.
A. A. MARKS,
701 Broadway, New York.
18-5db

Please mention this paper.

Oldest Bee Paper in America—Established in 1861.

AMERICAN BEE JOURNAL,

16-page Weekly—$1.00 a year.
Sample Free. THOMAS G. NEWMAN & SON,
925 West Madison Street, **Chicago, Ill.**

WANTED.—Situation on salary or shares from some bee-keeper. Have had 7 years' experience. E. SANDFORD, Nokomis, Ill.

MASSACHUSETTS AGRICULTURAL COLLEGE.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XIV. JAN. 1, 1886. No. 1.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18c per year extra. To all countries NOT of the U. P. U., 42c per year extra.

NOTES FROM THE BANNER APIARY.

NO. 73.

OR, TO BE MORE EXACT ABOUT THE FACT, NOTES FROM THE DETROIT CONVENTION.

SECTIONS.

IN the east, glassed sections sell better than unglassed; but Western people object to paying 15 cts. a pound for useless glass. The market demands sections of different sizes; but the one-pound leads the van. Spruce and poplar should be substituted for basswood, as they are harder, and it "saves the basswood."

FOUNDATION VS. EMPTY FRAMES.

Have small brood-nests, put only starters in the brood-frames when you hive a swarm. Try it, ye doubters.

EXTRACTED HONEY LOSES ITS FLAVOR

by being exposed to the air.

KEEPING COMB HONEY.

Comb honey can be kept by having it in a dry warm atmosphere. Have no pollen in it, and the moth will not trouble it. The fumes of burning sulphur settle. Have the honey at the bottom of the room. Set fire to the sulphur by throwing into it a hot iron.

50 LBS. OF SUGAR SYRUP.

Two parts sugar and one water, fed to a colony of bees in the fall, will enable them to build combs in empty frames, store the syrup, and winter well in a cellar.

ALSIKE CLOVER

can be grown at a profit, as a honey-plant, on land worth $50 per acre. It has yielded more than $25 worth of seed per acre. Sow the seed of honey-producing plants, those that produce honey alone, upon waste places *only*.

BEES BY THE POUND

should not be gorged with honey, and, when shipped, should be furnished with "Good" candy, and kept out of the sun. To secure good results, the bees should be young and the apiarist skillful.

BEE-STINGS, GLOVES, CLOTHING.

Cut off the ends of the fingers of rubber gloves; it allows the sweat to escape. They are then more comfortable, and last longer. Wear smooth clothing, singe the hairs from the hands and wrists, and the number of stings received will be lessened.

COMB FOUNDATION.

If the wax is the same, the "make" of fdn. has but little to do with its acceptance by the bees. Comb drawn from fdn. is tougher than natural comb, hence the fdn. in surplus honey should be *very* thin. Roller-mills can make thin fdn. if the wax is *not* sheeted thin; presses can not. Fdn. that has been closely boxed is hardened but little by age. Soaking old fdn. in warm water will remove the bluish color that it has acquired, and make it soft.

BEE-KEEPING AS A BUSINESS.

Whether bee-keeping "pays" as compared with other business, depends upon the "other" business. If one can make more at some other business, then it doesn't "pay;" if not, then it does. Each one must take *every thing* into consideration, and decide for himself.

REVERSING COMBS.

Besides the oft-repeated advantages of reversing combs, there is now claimed the additional one of its discouraging swarming by enlarging the brood capacity of the hive, and sending the honey into the surplus apartment. If inverted at the right time, queen-cells will be destroyed. Mr. Heddon has invented a reversible hive and section-case.

WINTERING BEES IN CELLARS.

The temperature of our bee-cellars can be kept higher than we have generally supposed. From 60° to 90° have given excellent results. With a high temperature, no absorbents are needed. A damp cellar requires a higher temperature than a dry cellar. But little ventilation is needed. Bee-bread in the hives does no harm, if the conditions are such that the bees do not eat it; and it appears that a high temperature is one of the conditions. In a warm cellar, bees will breed in the latter part of the winter, and weak colonies thus become strong. Prof. Cook explained that bees could breed without taking pollen into their intestines; but Wm. F. Clarke asserted (and was supported by Bro. Jones), that the rearing of young was the *hardest kind of work*, requiring the consumption of nitrogenous food by the *bees themselves.*

DIFFERENT RACES OF BEES.

Pure Syrians and Cyprians are excellent bees for warm countries, but not for Canada. When pure races meet the requirements it is well to have them in all their purity. Crosses between Italians and Cyprians or Syrians, and between Carniolans and Cyprians or Syrians, give the best result. The blacks are excellent comb-builders, and keep the honey out of the brood-nest.

TAKE PAINS IN REARING DRONES,

the same as in rearing queens. Remember that prepotency is on the male side.

PUT THE BROOD-COMBS CLOSE TOGETHER,

and it will "squeeze" the bees into the sections. The combs can be close together as 1¼ inches from center to center. This also discourages the building of drone-comb.

"ACCORDING TO NATURE."

This phrase has been a stumbling-block in the way of advancement. It is not a question of "naturalness," but it is, "all things considered, is it best?"

If I have not, in the above brief notes, given the proper expression of the convention, I hope to be corrected. W. Z. HUTCHINSON, SEC.

Rogersville, Mich.

Friend H., you have given the sum and substance of the principal points discussed while I was present at the convention, and we owe you a vote of thanks for having succeeded in boiling it down so well, only you have got it a little *too* brief, if any thing. I would remind our friends that the conclusions arrived at which you have, I believe, truthfully reported, were, at least many of them, decided upon only by prolonged and exhaustive discussion; and the intelligence that was brought to bear on these subjects, and such keen, strong intellects that grasped the different points, are not often brought together in one meeting. I was not present when the point you mention, "According to Nature," was discussed; but I have often felt what you express there. We do not manage bees according to nature, nor strawberries, nor anything else, nowadays; but we make even the frost and the snow, the thunderbolt and the torrents, do our bidding; and who shall say that we may not some time, after a feeble fashion, perhaps, make the winds and the waves obey us, something in the way they obeyed the Master in olden time?

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

ARTIFICIAL EGGS AS WELL AS ARTIFICIAL COMB HONEY.

INCLOSED I send you a slip cut from the New-York *Tribune* of Dec. 15th, in regard to artificial eggs. As things artificial are being much discussed, and as some claim that a poultry-yard is a necessary auxiliary to an apiary, I inclose the above, hoping that, if you find it interesting, I shall hear your views in regard to it in GLEANINGS.

Yonkers, N. Y., Dec. 16, 1885. G. WIEDERHOLD.

Friend W., I am very much obliged to you for the slip inclosed. Since you sent it, it has been copied widely into other papers. I will make a few extracts for the benefit of our readers:

In the back room of a Broadway office a curious invention was exhibited yesterday to several provision dealers and merchants. The invention consisted of a number of artificial eggs, which resembled the real article so exactly that none but an expert could distinguish them. The shells were made of a clear, transparent composition, and the shape was perfectly modeled. The portion surrounding the yolk was made of albumen, and the yolk itself of ground carrot and saffron. Three of these artificial eggs were placed on a platter by the exhibitor with half a dozen real ones, and the men present were told to select the bogus ones from the collection. The first expert exposed his ignorance by picking out three real eggs and declaring them to be artificial. The second, with a little better luck, owing partly to his avoiding the three selected by his unfortunate predecessor, managed to pick out two of the real eggs and one of the artificial ones. Thus with varying results each of the six men tried his skill in determining the difference between the eggs by their appearance. When each had had a trial, and failed, the exhibitor said:

"Now, gentlemen, you can test them in another way." A frying-pan was then placed on the stove, and in a few minutes it began to simmer. Two of the artificial eggs were picked up, their shells broken, and the contents dropped into the hot pan where they soon began to simmer and sputter. A little salt and pepper, a brisk two minutes' stirring with a fork, and as fine a dish of scrambled eggs as could be prepared at a restaurant was placed before the expectant guests.

"Help yourselves, gentlemen. They are as good as the real article. Nothing poisonous or disagreeable about them."

This invitation was complied with at once, and the several verdicts were: "Delicious," "Better than the real article," "What are they made of?" "They are not artificial, but fresh eggs from the country."

"Well, gentlemen," smilingly responded the exhibitor, "whether real or artificial, I can make any quantity of those eggs at a cost of about half a cent apiece, while you can not buy their equal for less than two or three cents. You have just had proof that you can not tell them from the real article by their appearance or by their taste when scrambled. In an omelette there is equally no perceptible difference, but when boiled the imposition is much more easily detected. But even then nine people out of ten would be deceived, as the only difference lies in the fact that the yolk and surrounding white portion will not harden separately as they do in the real egg. The flavor is about the same, which after all should be the main consideration. It is my intention to put these artificial eggs on the market soon, and my object in inviting you here to-day was to make you favorably impressed with them. I think I have done it. Good-day, gentlemen."

Of course, the above is a newspaper canard, and nothing else; but I do think the N. Y. *Tribune* might draw a little stronger line between truth and fiction. As if to mislead such of their readers as might not readily comprehend the above sell and joke, they go on in the same article as follows:

> There is some stir in Paterson over a theory entertained by some provision-dealers that somebody has been imposing on them with artificial eggs. Garrett Onderdonk, a farmer from Rockland County, N. Y., came into Paterson on Saturday with a lot of eggs which he sold to various dealers. George W. Saunders, a grocer, bought some, and found, as he alleges, that they were not genuine, as they had been represented to be. Saunders went before the Recorder and made a complaint against Onderdonk, alleging that the eggs were sold as fresh country eggs, whereas they were what are known in the trade as "pickled eggs," and that thereby a law of the State of New Jersey against the sale of adulterated food products was violated, the eggs having been treated by some peculiar process so as to look like a recent barnyard product. Onderdonk was arrested and pleaded guilty, and Recorder Greaves fined him $50, which Onderdonk paid and left the city. He has not returned since.

But, what has this transaction to do with artificial eggs? Why, nothing at all, of course; but the Cleveland *Leader* of Dec. 16 lays hold of it, and then announces:

> In our telegraphic columns will be found an account of the arrest and punishment of a man who pretended to be a Rockland Co., N. Y., granger, and sold to Paterson, N. J., merchants several dozen bogus eggs. The shells were made of a transparent composition, and were perfect in shape; the whites of albumen, and the yolks of ground carrots and saffron. In boiling, the bogus character of the eggs was easily seen, but it is evident that the imitation was a very good one.

This is a fair illustration of the way in which unscrupulous editors pass about these fraudulent statements. I am glad they have got to telling such abominable falsehoods that any one of good common sense knows better. At our teachers' meeting a few nights ago our minister made the remark, that when people commence telling falsehoods about us if we let them alone they will soon overstep the mark so far that no one will believe them, thereby killing what influence they possessed themselves; or, if you choose, branding themselves as liars, without any necessity for the innocent party to say a word. It seems as if it were going to turn out so in this case. And now I have been wondering if it were not about time for bee-keepers to write to editors who have been publishing these statements, and give them to understand that we as a body of bee-keepers propose to refuse to subscribe to any paper that gives place to these slanderous statements. If they have been giving place to them innocently or by falsehood, is it going too far to demand that they recall or contradict the slanders cast upon us? I hardly need say, that it is beyond the power of man to make any thing that could be called even a tolerable *imitation* of an egg. The stories in regard to it now going through the press are a disgrace to an enlightened nation. One editor, as if to shame his cotemporaries, has already announced that these artificial eggs are not as yet *quite* capable of being hatched into chickens, but that the inventor thinks he will fetch *even that* in a *few days!*

LATER.—The following is sent us by one of our subscribers, who clipped it from the Cincinnati *Commercial:*

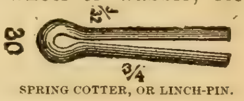
> ARTIFICIAL EGGS.
>
> NEW YORK, Dec. 15.—A number of dealers in eggs and produce in Paterson were called on, Saturday last, by a man representing himself as Garrett Onderdonk, of Rockland Co., N. Y. He sold each a load of fresh country eggs at a remarkably low figure. The eggs were delivered by another man, to whom the dealers refused payment. Yesterday Onderdonk called for his money, but was arrested, under an act prohibiting the sale of adulterated food. He pleaded guilty, whereupon he was fined $50.00 and costs. This he paid promptly, and left the city without attempting to collect for the eggs delivered. He admitted to several dealers that the eggs were artificial, and were manufactured by a firm in Newark, whose name he declined to disclose. The shells were made of a clear, transparent composition, and the shape was perfectly modeled. The portion surrounding the yolk was made of albumen, and the yolk itself of ground carrot and saffron.

Onderdonk was simply arrested and fined for selling stale eggs; the *Leader* changes it to "several dozen" *artificial* eggs, and the *Commercial* jumps to a "load" to *each* of a "*number of dealers.*"

SPRING COTTERS AND GIMLET-POINTED HOOKS.

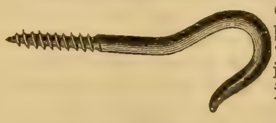
SOME USEFUL HOUSEHOLD ARTICLES.

WHO has not felt the need of a better "linch-pin," not only for children's carts, wagons, and carriages, but for different kinds of agricultural machinery? A bent wire is often used, but it is not strong, and gets twisted, and drops out, and then something must be procured as a substitute. A nail is driven, and this either drops out again, or splits the axle. If you try to bend it over it breaks off, and is unsatisfactory any way. A wire nail does better, for it can be bent so as to prevent dropping out; but this same bending property makes it bend when you don't want it to, allowing the wheel to wabble, etc. The cut adjoining shows what is called a spring cotter. It is made of tempered steel wire, shuts up easily with the fingers when you wish to put it into the hole, but springs open again so it can neither rattle nor drop out. I found them in the price list of a wire-goods circular, and we have procured and now keep in stock 10 different sizes, length as follows: 1 inch, 1¼ inch light, 1¼ inch heavy, 1½ in. light, 1½ inch heavy, 1¾ inch light, 2¼ inch heavy, 2½ inch light, 2½ inch heavy, and 3 inch heavy. The first 6 are sold at 10 for 5 cts.; the next 3 are sold at 5 for 5 cts., and the largest size at 3 cts. each. This last is just right to fill a ½-inch hole.



SPRING COTTER, OR LINCH-PIN.

Besides the above, we find, in the same catalogue, gimlet-pointed wire hooks which we illustrate in the cut adjoining. We keep all of these in stock, 4 sizes — 1½ inches long, 2 inches, 3½ inches, and 4½. The first two are 10 for 5 cts.; the next largest, 5 for 5 cts.; largest size, 3 cents each. The largest size would probably hold 500 lbs.; the smallest size, perhaps 10 lbs. If these goods are wanted by mail, add one-fourth the amount for postage.



GIMLET-POINTED HOOK.

EIGHT OR TEN FRAMES, WHICH?

GOOD REASONS FOR PREFERRING THE LATTER; CONTRACTING.

BEFORE this question drops out of discussion I wish to say a few words on the subject. For the two last seasons I have been testing hives of eight-frame capacity. My experience is not extensive with such small brood-apartments, but sufficient to furnish a pointer in the right direction. Since quite a small boy I have kept an apiary of an average of 75 colonies. I am now 43 years old. This gives me, as you see, a deal of experience, especially when I tell you that I have used hives holding all the way from one peck to five bushels, and have used frames of nearly all shapes and sizes.

About twelve years ago I settled down to the use of a hive containing ten L. frames, which seems to me to be the nearest the proper size of any other for most localities. By the use of contractors, suitable space may quickly be arranged to suit the requirements of any size of colony; and by the use of chaff division-boards, or contractors, made to take the place of the two outer frames, the space is reduced to the capacity of an eight-frame hive, and that, too, without interfering with the size of the surplus apartment. Cases and crates used for ten-frame hives in the surplus apartment may also be used on the so-arranged eight-frame hives, and no confusion. So much argument was produced in favor of eight-frame hives, I decided to reduce the brood-apartment of a dozen hives to this number, which was done by the before-described method.

During the first season's experience with these hives, my bees were at no time, by a good honey-flow, led up to the swarming-point.

About the same amount of surplus was taken from these eight-frame hives that was taken from my ten-frame hives. By a close estimate the small hives contained 9 lbs. less honey to begin the winter on than the ten-frame hives had; and as no honey was gathered the following season before June 10th I had to draw on the ten-frame hives for honey to run the small hives through.

Here it may be well to remark, that as it is true that farmers and nearly all bee-keepers having less or more bees, but making this branch of rural economy but a secondary matter, will be found negligent in the care of their bees, and, in consequence, would lose more extensively with hives of small capacity. Hence it may be easily seen that even the specialist must give more time, more labor, and more frequent manipulations where small hives are used.

As my second season's experience with the eight-frame hives was even worse than the first, I soon abandoned the use of them. Soon after the honey-flow began, and just as my bees had made a fine start in the sections, the swarming fever broke out in the apiary, and within three days 11 of the 12 eight-frame hives had swarmed, while but one in six of the ten-frame hives swarmed that season; and as I wished to conduct my apiary as far as possible on the non-swarming principle, I at once was out of conceit of hives of less capacity than ten frames. There is a difference of opinion about this matter of running bees on the as-far-as-possible-non-swarming plan; but with me this plan is the most profitable, and reduces the running expenses, as well as the labor of the apiary, to the minimum.

If I may be indulged further I should be pleased to say a few words on the question of

CONTRACTION.

Taking into consideration the extra time and labor of, first, contracting the brood-nest to five or six combs, at the time of putting on sections, trouble in disposing of the extra combs removed, the materially lessened room left *immediately above* brood-combs for sections; and, second, the returning to place combs that were taken away, cost of sugar, preparation and feeding of same, expense of feeders, etc., would the apiarist be any better off with this system of management than he would be were all the frames left undisturbed in the brood-apartment throughout the year, and take what surplus the bees were able to produce? I am of the opinion, that, taking a number of years in succession, the best results would be obtained by leaving all the frames in their proper place. What can be gained by forcing all the honey into the surplus receptacles, to be extracted and sold in a hard market at 7 cents per lb., "keg thrown in," then go home, buy sugar at about the same price to feed up again for winter? Yes, I've tried this too. Why not take just what your bees can spare, stored in sections, or surplus combs for the extractor, and, when removed, replace your slatted honey-board, put on quilt, then chaff cushion, and go away from them? They are ready for the winter. J. A. BUCHANAN.

Holliday's Cove, W. Va., Dec. 10, 1885.

Friend B., although I have not experimented as you have, I had come to the same conclusion you do, and for about the same reasons. The greatest reason besides the above is, that the eight-frame and ten-frame hives could not be made interchangeable when used on the Simplicity plan. I think it would be a serious mistake to commence making narrow hives.

THE HONEY-MARKET OF NEW YORK.

SINGLE-TIERED CRATES VERSUS THE DOUBLE-TIERED; ADULTERATION OF FOOD.

DURING my stay in New York I have taken some pains to look into the honey-trade of that city, and the results of my investigations are as follows. Thurber, Whyland & Co., have on hand from 50 to 60 tons of as fine a lot of honey as I have seen. Messrs. McCaul & Hildreth Bros., who give quotations of honey in GLEANINGS, have about 35 tons. Something over half of these lots of honey is comb honey, put up in single-tiered crates; that is, those having but one layer of sections. These crates are very similar to the Heddon-Hutchinson style — a cut of which appeared in the last issue, and do not hold over 15 or 20 lbs. of honey. Neither of these firms cares to handle honey in the double-tiered crates. The reasons given by them for rejecting the double-tiered crates are about as follows, and are similar to those given by Heddon:

The sections are not as easily gotten out, are more apt to be daubed, and during shipment are not as liable to be broken. I am satisfied, from conversation with these gentlemen, that the 48 or 50 lb. crate or case is undesirable, being both unwieldy by reason of its weight, and not as salable as the smaller package. It is no easy task to lift a 50-lb. crate of honey to or from a wagon or car. A smaller crate will always insure more careful handling, and therefore be less liable to breakage. Again, consumers prefer to buy the smaller packages to the larger. These reasons have already been considered before, but are the opinions of the large wholesalers. Although honey is selling well at present, these wholesalers state that it is difficult to conceive the amount of damage and pernicious effect these newspaper canards have had upon the trade. They can scarcely convince their customers that their honey is the pure article, such has been the effect of these sensational falsehoods on the market of New York.

THE ADULTERATION OF EGGS AND HONEY.

Now that the papers have proven to *their* entire satisfaction that comb honey can be successfully manufactured, they come out, with unblushing ignorance, with a sensation more ridiculous; namely, the manufacture of eggs, a clipping of which I sent, and appears in another column. You observe, that they *assume* that comb honey has been manufactured, and that "Yankee ingenuity" (of which we ought to feel so proud) has made another big stride (?) in manufacturing the egg. They even claim that not only the yolk and the white of the egg have been imitated, but assert that the film just outside, and adhering to the shell, has been made. Then with apparent candor that savors of the false statements of the honey trade, state that these eggs can not be detected from the genuine, except as they are boiled. In conversation with a number of prominent New York merchants dealing in dairy products, I learned, as I had expected, that the thing was a falsehood, and an utter impossibility. Below will be found a clipping that is just to the point — taken from Harper's *Weekly*, page 859:

> Of all things that are ridiculous one would least like to believe that an artificial egg can be made so nearly resembling a hen's egg that a man will break it, and put salt on it, and eat it with a spoon, without suspecting that it was not laid by a hen. Such eggs, however, have been exhibited in this city, according to (false) report, and it is declared that they can be made and sold at a profit for half a cent apiece. It beats all; nothing is impossible if this is true. Will it, however, be too much to ask the inventor, after the world has become convinced of the reality of the perfect imitation, to make a new and more convenient style of shell for the eggs intended for common use? The shells should be a trifle tougher, if it is not impertinent to say so, and should be made to unscrew, and be provided with some sort of little antiphlogistic handles, so that one may open them, when boiled, neatly and without pain.

Now, if the same inventors referred to in the above will turn their miraculous genius (?) to manufacturing an article of comb honey whose cells will be like india-rubber, will not melt down, break, smash, or leak, and yet retain the appearance of comb honey, they will confer an everlasting boon on humanity. We shall then have eggs that "unscrew," honey that won't smash. If said papers continue at this astounding rate, "Yankee ingenuity" will produce artificial fish, oysters, lobsters, and what not at a very small cost. I do not mean to condemn *all* newspapers. They have their legitimate place, and are almost indispensable to the public; but when they meddle with business that they know nothing of, I think it is time to protest. No doubt milk and butter have been adulterated to some extent, and it is proper that such frauds should be shown up; but it is not a fair conclusion to infer that all other foods are adulterated as well. **Ernest R. Root.**

Passaic, N. J., Dec. 24, 1885.

BEES EATING CLAY.

ALSO SOME KIND WORDS FROM AN OLD FRIEND, FOR GLEANINGS AND HIS BROTHER BEE-KEEPERS.

IT is now nearly half a century since I commenced to handle bees. I have been engaged in bee culture ever since, and found it profitable, and very interesting, and pleasant. My apiary is nicely located near the public highway, most of it shaded with grapevines. My hives combine mostly the modern improvements of the age.

Within a few rods of our apiary we have a beautiful vineyard, and keep many sheep, all on the same farm, where white clover is abundant; yet I have never discovered that any one of them has been a serious injury or detriment to the other. If any distinction can be made, I should think it would be in favor of the bees. As it has been quite cold, and the ground frozen for some time, the bees could not venture out. But as it has now thawed, and teams have cut up the fresh yellow clay, while the bright sun and wind are drying this clay it reminds one of fresh maple sugar just stirred off.

Well, on the 24th the air was so balmy, the sun shining bright, my bees concluded that now is the appointed time to get a good dinner from the soft fresh clay, preparatory to another cold blast—guided, no doubt, by the same instinct and desire that directs large animals, such as horses, hogs, sheep, and other clay-eating animals.

Now, let me tell you how I was delighted with the bees yesterday. While I was helping one of my sons, who are farmers, to put a new bottom in a wagon-box (as I am a wood mechanic), and working on the opposite side of the public highway near the apiary, we were busily at work when I heard a sound of bees, much like that of swarming. We stopped work to discover what they were up to; the air appeared to be filled with bees, flying thick as in June. They were flying in various directions, and alighting on the ground. I soon discovered what they were up to, so I laid down my tools to watch them, as I have often done at other times. The road was dotted thick with bees, as I could distinctly see when looking toward the sun. I observed them in many other places where the clay had been lately disturbed. I do not think they were seeking water, as it was plentiful and not difficult to get. After closely watching them they invariably seemed to select the dryest clods, and, as nearly as I could ascertain, they appeared to me to be eating clay. If so, perhaps the want of it is the cause of diseases which the long cold weather is very likely to bring. Well, the result was, the wagon-box did not get finished that day, as such a fine opportunity offered to go about watching these little creatures, to find just what they were really doing.

It is a rare thing to see bees out in such force, and at this season of the year up here near the northern lakes, and so deeply and busily engaged on the ground as to take little or no notice of any thing else, although when I would put my glass too near their little nose in order to find out what they were really doing, by my prying into their business matters too much they would become indignant at my impertinence, and reluctantly fly away in such a manner that I almost fancied I could see them lay their little ears back with "pure mad."

Well, just at this time a bundle of mail matter came, so I went to the house and opened the package, when out tumbled GLEANINGS. On the wrapper the word, in large capitals, "NOTICE." Then followed, in smaller type, these words: "If we are correct, your subscription expires with the present month." (Just like Mr. Root; he did not want to be too positive, although he felt quite sure.) Oh, if all men would be as careful, what a world of pleasure this would be! Then on the wrapper I further read: "If you have found GLEANINGS so far a good investment, we shall be pleased to continue your name on our list. As this is a question that rests with you alone to decide, we can only tender you our thanks for past patronage, and wish you success in bee culture for the future, whether your decision should favor ours or not."

Now, how was I to decide such a case as that? In my library and on my table is a copy of nearly all the bee-journals published. I can not well afford to take all of them, nor would it be good economy to do so. Well, friend Root, I have not a word of disparagement to say of any of these bee-journals; but I find, as GLEANINGS has been coming regularly for years, not one copy was missing or out of regular time. It has more than filled my expectations, and proved of great value and satisfaction to me. I consider it a very good investment, even if I keep no bees. As to its arrangement as a bee-journal, I would not attempt to dictate, nor could I make any suggestions that would be an improvement; so, as my name is on your list, I will send you in this mail an order for another year's subscription.

Remembering you for your kindness and fair dealings, with the many good things I have read in the A B C and GLEANINGS, permit me to thank you, wishing you a happy Christmas and prosperous new year; extending the same to all the bee-friends, and especially those who have contributed so many good things to me through GLEANINGS, I am, respectfully, JOHN W. NIMAN.

Spring Mills, Ohio.

Thank you, friend N., for your very kind letter; but it seems to me your experiment is hardly conclusive, that the bees really gathered the clay and not the water it contained, unless you saw them pack the yellow clay, like pollen, into their pollen-baskets. We have had reports of bees packing black peaty soil, just as they pack pollen, and carry it into their hives, and I should not think it very strange if they sometimes used some kinds of yellow earth. It is well known, the way in which they appropriate sawdust; and why may not this material answer as well? Can any other friend give us any light on the subject? and do they pack clay on their legs?

NOTES AND QUERIES.

A REPORT FROM MRS. L. HARRISON.

THE winter thus far in this locality has been very favorable for bees on their summer stands. I notice that, from hives protected most, fewest dead bees are carried out. Bees flew finely several days this week; and after they were quiet, part of them were stored in the cellar. The dozen queens purchased of you last summer all proved satisfactory.

Peoria, Ill., Dec. 26, 1885. MRS. L. HARRISON.

TEMPERATURE OF THE EARTH AND WELLS.

I have just tested the water in my well, which is 25 ft. deep. The temperature is 45°, water pumped from the bottom. Temperature of the atmosphere, 24 above zero at the time of test. I made a test during the warm weather of summer, and the temperature was no higher than now.

H. R. BOARDMAN.

East Townsend, Ohio, Dec. 26, 1885.

TEMPERATURE OF DEEP WELLS.

I have just read friend Doolittle's remarks, and your comments, on "Temperature of the Earth," and tested my 60-foot well with two good thermometers by completely immersing them in a freshly drawn bucket of water. The bath showed exactly 54 degrees. Terre Haute lies between 39th and 40th degree north latitude. T. H. KLOER.

Terre Haute, Ind., Dec. 25, 1885.

HONEY-PAILS; WIRE CLOTH AS A FRUIT-TREE PROTECTOR.

I was well pleased with my honey-pails, and find it the best way to handle extracted honey. I think my experiment with the wire cloth as a fruit-tree protector is going to be a success. If so, look out for orders for wire cloth from this locality next season. I will send my honey report for this year soon. W. G. CONDON.

Clinton, Mo., Nov. 10, 1885.

FROM 300 STANDS TO 500; 8925 LBS. OF HONEY, $150 IN CASH, AND 500 LBS. OF BEESWAX.

Bees are in good condition. I commenced in the spring with 300 stands of bees; sold 50 stands at $3 a stand; increased the remainder to over 500 colonies, all in good condition; also got 15 barrels of honey, each barrel holding 45 gallons, and got 1500 pounds of comb honey in sections; also by pruning and cutting out all drone-comb I have accumulated 500 pounds of beeswax, which I think is not a very bad crop for this year's work. E. STAHL, JR.

Kenner, La., Dec. 28, 1885.

SCREENS FOR FISH; SWINDLES.

Yours with zinc, received. If thicker, this material would answer for small screens, temporarily. There would be danger of breaking them when cleaning. Heavy, substantial galvanized-wire screens are safest, and consequently best and cheapest.—Look out for the newspaper swindler "Bain," with his pretended "Fish-Cultural book," alias LeMorris, alias U. S. Fish Co., Columbus, Ohio.

MILTON P. PEIRCE.

Philadelphia, Pa., Nov. 24, 1885.

[The above refers to the Jones perforated zinc which I sent friend Peirce, with inquiry if it would not answer for outlets to carp-ponds.]

A WOMAN'S SUCCESS.

Mrs. Thomas, of Philadelphia, reported at a meeting of bee-keepers in Trenton last month that she had obtained an average of 150 lbs. of honey from 20 colonies, or a total crop of 3000 lbs. This was extracted honey, for which she received 25 cts. per lb., netting her, therefore, $37.50 per hive. She also cleared last year $1000 from her poultry-yard, and runs a twenty-acre farm besides.

[The above was clipped from one of the newspapers. The price our friend received for her honey, it seems to us, was extravagant; but the yield mentioned is not extraordinary. Perhaps we should make some allowance for newspaper exaggeration, but I am rejoiced to know that women can manage these rural industries with as much wisdom, and many times more, than our own sex.]

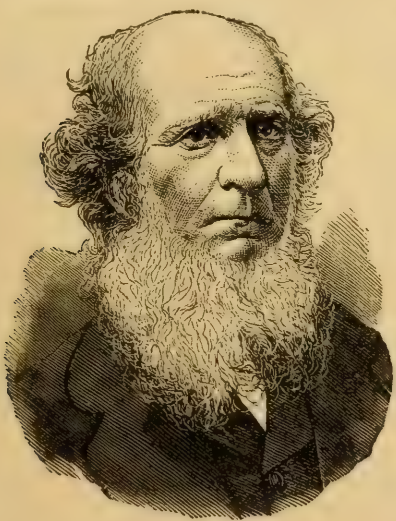
IN MEMORIAM—WM. W. CARY.

FROM OUR OLD FRIEND MR. LANGSTROTH.

HE was born in Coleraine, Mass., Feb. 24, 1815, and died Dec. 9, 1884.

It affords me a melancholy satisfaction to review my long acquaintance with the late Mr. Wm. W. Cary, and to set out more fully than has yet been attempted, some of the important services which he rendered to bee-keeping. To do this seems to me the more obligatory, as he so seldom used his pen for the press that these services might fail to be put on record.

After testing quite largely my movable-comb frames in West Philadelphia, in the bee-season of 1852, in the fall of that year I went to Greenfield, Mass., to introduce my hive were I was best known as a bee-keeper. Mr. Cary kept some bees in the adjoining town of Coleraine, and was among the first to take an interest in my invention. He was very fond of bees, and more than usually familiar with their habits—and as soon as he saw the working of the hive, he believed that it would make a revolution in bee-keeping. For the six years that I remained in Greenfield, we were in such frequent communication that, in furthering my experiments, his apiary was almost as much at my service as my own.



WILLIAM W. CARY.

In the spring of 1860 I was invited by Mr. S. B. Parsons, of Flushing, L. I., to advise him how best to breed and disseminate the Italian (Ligurian) bees which he had recently imported. Finding that the person who came in charge of most of these bees could not do the work that was expected of him, I advised Mr. Parsons to secure the services of Mr. Cary. To great energy of character, and good business habits, he united long experience in the management of movable-frame hives, with an enthusiastic desire to see the introduction of these foreign bees made a success. From my intimate acquaintance with him I could further assure Mr. Parsons that, with all these requisites for the position, he possessed in as large a degree as any one I had ever known, that "highest fidelity" which Columella, nearly 2000 years ago, declared to be an essential qualification for the superintendence of an apiary—and which he thought was very rarely to be met with. Is it much easier to find that now than it was then?

Mr. Cary's work in Mr. Parsons' apiary fully justified his selection. While the foreigner, in a separate apiary established by Mr. Parsons, and furnished with just the same facilities for breeding queens, failed to rear enough even to pay for the black bees and feed he used in his operations, Mr. Cary supplied all the queens needed in Mr. Parsons' apiary, and filled all his numerous orders.

No better proof could possibly be given of the extent and thoroughness of his work, than the fact that 113 queens bred by him that season were so carefully prepared for shipment, under the joint supervision of himself and Mr. A. G. Biglow, that all except two of them were safely carried by Mr. Biglow from New York to San Francisco! Mr. B. had stopped over one steamer on the Isthmus of Panama to give his bees a cleansing flight, and one queen entering the nucleus of another, both were killed. The colonies to which they belonged, when examined on their arrival at California, were each found to have reared another queen.

To appreciate fully the extraordinary success of Mr. Cary as a breeder and shipper of Italian queens, it needs but to be stated that during this very year but few queens came alive, out of the many sent from Europe, and that, for years after, a large part of our imported queens either died on the way, or arrived in such poor condition as to be of little or no value. It will be remembered by some of the old readers of the *American Bee Journal*, that Mr. Cary was the first person to send a queen across the ocean, in a single-comb nucleus, with a few workers. She was consigned to my lamented friend, Mr. Woodbury, of Exeter, England, and reached him in excellent condition. Those who now receive the queens which are sent by mail from Europe, and even from Syria, should bear in mind that only after many and costly experiments has such admirable success been secured.

After his splendid achievements in Mr. Parsons' service, Mr. Cary greatly enlarged his own apiary, and placed himself in the front rank of reliable breeders of Italian queens.

When Dr. E. Parmly, of New York, imported a number of Egyptian queens, he entrusted them to Mr. Cary, having, as I know, as strong confidence as myself in his sagacity and fidelity. Mr. Cary first called my attention, in his own apiary, to the inferior appearance of the comb honey of those bees. It was capped in such a way as to look like honey damaged by "sweating"— so called — after being kept in too damp a place. He was also the first to notice that Egyptian bees, in extending their combs, built their lower edges almost perfectly square throughout their whole length — in marked contrast to the way in which black bees build them — and improving in this respect even upon the Italians. Although I imported the first Egyptian queen, Mr. Cary had the largest experience with this variety, and after a fair trial we both discarded them as very much inferior to the Italians.

While Mr. Cary was a great enthusiast in bee culture, and always ready to accept every discovery and improvement, he was not carried away by plausible novelties or conceits. When near him, I always took peculiar pleasure in communicating to him all matters that from time to time were engaging my attention, and our occasional meetings in later years were highly prized. He seldom failed to detect any flaw in what was submitted to his judgment, and his deliberate "yes" or "no" had greater weight with me in bee-matters than that of almost any other person.

Mr. Cary's location was inferior in honey-resources to those who in this country have achieved the greatest pecuniary success from the keeping of bees; he was also quite lame, from an accident in his youth; yet notwithstanding these and other obstacles, he built up gradually a large apiary. He was not only a strictly honest man, but a highly honorable one in all his dealings; and in cases of doubt he made it his rule to give his customers the benefit of that doubt, instead of claiming it for himself. Like myself he had the help of an only son in the management of his business; but, happier in this respect than myself, he was not called to lament his premature death.

Mr. Cary's interest in bees ceased only with his life. A few weeks before his death he was able to be out in his apiary, where he witnessed with much pleasure some novel arrangements for the safe wintering of a colony in the open air.

Samuel Wagner, Moses Quinby, Richard Colvin, Adam Grimm, Roswell C. Otis, Wm. W. Cary — they have all passed away! And probably no one knows better or appreciates more highly than their old friend who still survives to honor their memories, how much their various labors contributed to the splendid success of the movable-frame principle in American bee-keeping. L. L. LANGSTROTH.

Oxford, O., Nov. 10, 1885.

Perhaps we should apologize to our readers for giving the above so long after it has appeared in other journals, especially as the main part of GLEANINGS is, as a rule, original matter. In sending to us the copy, friend L. requested that it should not be put in print until the engraving of friend Cary was sent us, and it has only just come to hand.

REMOVING THE FRAMES FROM THE UPPER STORY OF CHAFF HIVES.

AN ADVERSE REPORT FROM SOUTHERN OHIO.

FOR some years past I have been a silent but appreciative reader of your journal, and have gained many valuable hints from its pages. It is always up to the times in advocating the use of new implements that are of real value to bee-keepers, and its columns are always open to suggestions as to any alterations of implements, hives, etc., which have cheapness, practicability, and real merit to commend them. As I am somewhat engaged in the manufacture and sale of hives, etc., using and advocating the Simplicity and chaff hive, I am interested in their being as near perfect as it is possible to make them. The chaff hive, as far as I can see, has but one objection as to the manipulation of the frames; that is, having the frames in the upper story run crosswise of the lower-story frames. This subject, I know, has been brought up many times; but I have never seen it settled to my satisfaction. Almost every one that I have ever talked with upon the merits and demerits of the chaff hive raises this objection. Friend Stansbury, of Long Bottom, Ohio, made me a short call a few days ago, and he objected very strongly to this feature of the chaff hive, and thought it a great detriment to its use. I think I have arrived at a solution of the problem; and though it may not be entirely new, I have never seen it mentioned. It consists of a movable box inside of the upper story, made of about ¾-inch lumber, and of same inside dimensions as the lower story, which makes about 20 in. long by 15¾ wide. In fact, a Simplicity body, if a trifle short, will answer the purpose admirably, especially if the upper story of the chaff hive is, in turn, a little long. This inside story being only about 16 inches in width, leaves ample room to get the hands down at the sides to catch in the handholds to raise the story out of the hive. Now place your frames in this and you have as near a Simplicity hive inside of a chaff hive as you would wish. If you would utilize the vacant space left, you can easily arrange it for a single brood-frame at each side, and give the bees access to them. But I think the box will give sufficient room for most localities.

Now, any one can see that the tiering-up system, of which Mr. Heddon is so earnest an advocate, can be easily used by making a thin upper story for the chaff hive, just high enough to admit of another box or Simplicity body being placed on top of the one in the upper story of the chaff hive. The advantages of this system are, that free access can be had to the brood-chamber, and no necessity for having 10 wide frames standing around in every direction while you perform the necessary manipulations.

But there are seldom great advantages without some disadvantages. The only disadvantage, so far as I can see, is, that when the upper and lower frames are fastened together with comb, the lower frames (especially if metal-cornered) will sometimes follow the upper story when it is lifted out, and there is no way to loosen them as in the Simplicity. But I think if they are adjusted so as not to have over ¼-inch bee-space there will be no trouble. I think, also, that a modification of the Heddon honey-board could be used advantageously.

Now, friend Root, do not bring in the verdict of "too many contrivances, contraptions, etc.," for the hive need not be changed in the least. Although I have not put this into practice yet, I believe it will be a success, and therefore submit it to the bee-keepers for trial next season. This plan lessens the cost of a complete hive, as it dispenses with three wide frames, and requires only a cheap body instead.

MY REPORT.

As yet I have seen no reports of this season's work from this section of Ohio. I suppose one reason is, that there are no reports to make. The freezing weather of last winter, while there was no snow on the ground, resulted in an entire failure of the white clover, and therefore a failure of the honey crop. My report is about as follows: Increased from 18 to 25, and doubled back to 21; took four sections of honey, worth about 10 cents apiece, and extracted about 50 lbs. of sumac honey. I shall have to feed about 100 lbs. of sugar. I suppose this is about as good a report as any bee-keeper in this section of the country can give. We hope for a better season next year.

QUEENS HATCHING FROM THE CELL WHILE EXAMINING THEM.

I had a rather unusual occurrence in the queen-hatching line this summer. While waiting for an after-swarm to settle I opened the hive from which it issued, to save some queen-cells. The first cell I came to I laid upon a hive near by in the shade. While looking further I happened to glance around, and I saw a queen running around on top of the hive where the cell was laid. She was caged, and further search resulted in finding two more cells in which the queens were pushing the caps up so with their heads that I had to hold the caps down until I got them caged. Three queens hatched within three minutes. E. E. CROSS.

Racine, Meigs Co., O., Nov. 26, 1885.

Friend C., this matter has been up before, and I believe quite a number of the friends have been using Simplicity hives in the upper story of a chaff hive. Heddon's slatted honey-board would probably help us entirely over the difficulty of having the upper and lower frames built together; in other words, enable us to lift out the upper story at any time without trouble. You will need to take into account that you thus reduce the capacity of the upper story of the chaff hive. Instead of having 80 sections to fill, you have only 56 sections, and a strong colony will very likely fill the whole 80 about as quickly as they would the 56.

FEW OR MANY COLONIES: WHICH?

SHALL WE HAVE A FEW BEES IN MANY HIVES, OR MANY BEES IN A FEW HIVES?

WHILE reading the quotations from Peter Henderson's "Gardening for Profit," found on page 782 of GLEANINGS for 1885, I fell to wondering if a lesson could not be drawn from it for many of us who think we are on the right road to successful apiculture. There seems to be a growing tendency of late to multiply our number of colonies, rather than see how good results can be obtained from a few. In other words, we are using four acres of land, and expending more labor, to produce the same results which Peter Henderson's man achieved on his one acre. The question which arises is, Can or can not the bees be worked on the same plan, so that 50 colonies will produce as good results, with less labor, than is gotten from 200 worked in the way many apiaries are worked? I believe they can, and think the day is not far distant when one colony will be made to produce as good results as two are now doing, if they do not equal four. I have carefully watched the papers for the past few years, and I find it not uncommon to find where 50 colonies of bees are reported to have produced 5, 6, 7, and even 8000 lbs. of honey, while I have yet to see a report quadrupling such where four times the number of colonies were kept. I oftener find that 200 colonies give but little if any better results than do 50, while I know that more work is required to care for 200 during a year, than is required for 50. To this work we have to add the extra expense of hives, sections, etc., together with the large amount of honey it takes to feed those extra 150 colonies. This last, in my opinion, is wherein lies the main trouble in making a large number produce as many pounds per colony as do a few. From careful experiments and observations I am led to believe that it takes at least 60 lbs. of honey to carry one colony of bees through the year; hence if we get only 30 lbs. from a colony (an average yield that some bee-keepers say they are satisfied with), we get only one-third of the honey our bees gather, to pay us back for all our labor and capital invested; and also one-third of the product only, of our field. This product of the field can not be overlooked, as I have every reason to believe, from the past season's experience.

A few years ago I was enabled to get an average of 166 lbs. of honey from each of 67 colonies of bees, as the average result of a single season. This caused a great excitement in my neighborhood, and many went into bee-keeping, until I could count over 500 colonies of bees within a distance of two miles of my house, the result of which was a gradual lessening of the surplus honey per colony, so that little more honey in the aggregate was obtained from the 500 colonies than I obtained from the 67. The past winter reduced the number of bees by about three-fifths; and the result was, that during the past season my average per colony was about 120 lbs. of surplus, and the aggregate amount of surplus about the same as from the 500. At 60 lbs. of honey as food for a colony, it will take 30,000 lbs. for 500 colonies. To this add a surplus of 15,000 lbs., which is about what was obtained where the 500 were kept, and we have 45,000 lbs. as the product of our field, two-thirds of which was consumed by the bees. This season we had but about 200 colonies on the same field, which consumed only 12,000 lbs. for their wants, leaving 33,000 lbs. as surplus. As the 200 gave about 120 lbs. each as surplus, or 24,000 lbs., we have 9000 lbs. going to waste for lack of gatherers, thus giving 250 colonies as about the right number for our field, providing that 120 lbs. is set down as a surplus with which all should be satisfied. But I claim that our bees can be so worked that 200 lbs. can be secured as a surplus from each old colony in the spring, in which case 175 colonies would be sufficient for our field. Now, I candidly ask the reader if we had not better keep the number in our field at 175, thus securing 35,000 lbs. of the 45,000 as a surplus, rather than keep 500 colonies and get only 15,000 of the 45,000 as pay for our labor, letting the bees consume the rest. In other words, can we not make a few bees do for us what the market gardeners of the large cities make a small piece of land do for them; namely, get as much profit from an acre of land as some of our county people do from their tens of acres? I know this line of reasoning can not be made mathematically correct, yet there is in this thing a large and unexplored region well deserving of our best thoughts and efforts. Who will be the first to work it out for us practically? G. M. DOOLITTLE.

Borodino, N. Y., Dec., 1885.

Friend D., I agree exactly with you in this matter. The mania for rapid increase is oftentimes a very sad one, and beginners often seem to think it is a great thing to be able to say they are the owners of 100 or 200 colonies. Over and over again have I seen men who could winter 25 or 50 colonies, almost without loss, get demoralized, and fail, when they got up into the hundreds. It is not a very difficult matter to go over 25 colonies and put each and every one of them in the best possible shape for winter; but when it comes to undertaking to do the same thing with 100 or more, even the best of us are liable to get demoralized, as it were, lose our energy, and fail. By looking over the back numbers of GLEANINGS, especially the department headed Reports Encouraging, we find reports without number where some one, comparatively new at the business, has secured surplus in astonishing quantities from a small number of stocks. These same individuals, when they get a large apiary on their hands, find that it is next to impossible to obtain the same results per colony, even if the locality would give it. I have myself secured over 300 lbs. surplus from a single colony. Now, an apiary of even 25 colonies, each and every one of which was made to do this, would afford a pretty fair income, and the labor to get it from 25 hives would be nothing like going over 200 colonies. I believe it would be pretty good advice for all of us to keep our bees in few hives; keep crowding them back, and discourage increase; and then when winter comes, instead of having 100 hives with bees enough in the whole lot to make only 10 good colonies, we should have, say, 25 hives with bees enough in the 25 to make 50 ordinary colonies. You know I am one of those who never yet saw too many bees in a hive at any time of the year.

A HINT ON INTRODUCING.

DISTURBING THE COLONY AFTER HAVING LIBERATED THE QUEEN.

THE case of O. P. Phillips (see No. 21, current Vol. GLEANINGS), calls to mind my own experience. I have learned that the bees must not be disturbed, neither at the time nor soon after the queen is liberated. Having learned this by sad experience I devised a way to do it on the sly. I place the caged queen between the frames, pressing them to it tightly, to hold it in place. To the stopper in one end of the cage I attach a strong string, and pass the end through a small hole made in the end of the hive (I use the Langstroth). After leaving this at least 48 hours I draw the stopper by the string in the night, and do it so quietly the bees will not know any thing has happened, and all is well.

It will be seen that this plan is much the same as that given by E. M. Hayhurst, at the late meeting of the Western B. K. Association at Independence, Mo. The reason these precautions are needed is well stated by him (see GLEANINGS, p. 770): "If the bees are disturbed before the queen begins to lay she will become frightened, running and piping, and the bees will chase and kill her." He says, "Before she begins to lay." I had one balled this summer *after* she had been laying, because of the bees being disturbed by my search to see if she was all right. I have never failed with the plan I have given. J. T. GODDARD.

Muscatine, Ia., Nov. 27, 1885.

Friend G., I am well aware that bees often attack the queen, and sometimes kill her, just because the hive is opened, and they are stirred up about the time the queen is liberated. But I am also sorry to say, that they often kill queens where the cage is opened by pulling a string, or by letting the bees eat out the candy, or in other ways where the queen is liberated quietly. We have never found any way to answer so well in the long run, as liberating them by the Peet-cage plan; but even then we always think it best to look the colony over, and see how things are getting along. If the queen is killed we want to take immediate steps to put in another. If she is balled, give the colony a good smoking, and keep it up until they behave themselves. If she is all right, just as soon as you discover she is so, close the hive very quickly, and then let them alone.—By the way, I must say once more that I think the metal corners which so many object to, very greatly facilitate opening a hive and closing it, without getting the bees stirred up. When we can open a hive so quickly that no bee thinks of stopping his work, we certainly are not doing very much harm.

EGG-LAYING OF QUEENS

A MATTER OF VOLITION, AND NOT AUTOMATIC.

IT will be remembered that the greatly lamented Mr. Samuel Wagner suggested that the queen was merely an automaton as to laying eggs, whether they should be worker or drone eggs. He suggested that the mechanical pressure of the small worker-cells so compressed the spermatheca that the sperm-cells were forced out, and brought into connection with the germ-cells. On the other hand, the larger drone-cells would not exert such compression, so the spermatoza would not be extruded from the spermatheca, and so the eggs would leave the oviduct unfecundated, and so would develop into drones, or males. We know now that this view is no longer maintained. The muscular arrangement for forcing the germ-cells out of the spermatheca; the fact that worker-eggs are often laid in cells which are hardly more than commenced; the fact that impregnated eggs are laid in the large queen-cells; and the further fact that young queens, when they first commence laying, before they have fairly "learned the ropes," as it were, very frequently lay quite a number of drone-eggs in worker-cells. All this is more than enough to convince us that the adding or withholding the sperm-cells from the eggs is merely a matter of volition with the queen. It is probably true, that young queens desire and mean to lay only worker-eggs in the worker-cells, as they rarely lay any other the first months of their existence; but lack of experience, and awkwardness in managing the delicate muscular apparatus of the spermatheca at first, cause a few slips in the early work of egg-laying; hence the scattering drone-brood, which results from a few of the first-laid eggs of young queens.

That eminent English statesman and naturalist, Sir John Lubbock, has recently given some facts that have interest in this connection, and can not but interest every reader of GLEANINGS, as they have me. As is well known, wasps are very closely related to bees in structure, and in their physiological economy; hence any fact in regard to wasps may be, *should* be, considered and studied by the bee-keeper as of importance in his work and study of his little servants.

Sir John finds, that when a wasp provisions her nest with spiders of the same kind she always takes the same number. Wasps of different species take more or less, according to the size; and, strangest of all, the mother-wasp invariably places more insects in the cell with an egg that is to produce a female, than in a cell with an egg that is to produce a male. The female wasp is the larger. Here we see that the mother-wasp not only knows the kind of an egg she is to lay, but she provisions the cells with exact reference to the necessities of the case.

Who shall be so prejudiced as to say that her waspship does not consider her act in laying the special egg, and does not think and plan in maternal acts looking to the larders of her yet unborn? Now, if a wasp realizes what she is doing as she adds or withholds the sperm-cells, to such an extent that it influences her daily acts, and modifies her performance of daily duties, who shall say that the queen-bee, of higher development and structure, does not think upon her act as she places the eggs in drone or worker cells? So we have here another proof that egg-laying, with the queen, is a matter attended with intelligent volition; and far be it from me to say that the queen does not consider the size of her home, the population of her family, and the dimensions of her larder, as she passes in stately mien over the combs, stocking the worker or drone cells as circumstances dictate. If volition and discretion are exercised, we can easily see why the affairs in different hives vary. Each queen has her own notions. A. J. Cook.

Agricultural College, Mich., Dec. 15, 1885.

ANOTHER USE FOR HONEY.

EGGS NOT HATCHING; WINTERING.

IN the *Medical Times* for Nov. 28, 1885, in its Paris letter, written by Thomas Linn, M. D., there is given an important new use for honey, discovered by Dr. Comi, of Rome, by which the human body can be preserved for many years with its "natural color, form, and consistence.

"To preserve organic bodies in a flexible state, all that is required is to steep them in honey, the finest and clearest that can be found. The cephalic, thoracic, and abdominal cavities must be filled with tannin. The result obtained here is due to a sort of fermentation, alcoholic in its nature, that keeps the parts for a long time: afterward they harden."

The above facts are given on excellent authority, and are doubtless reliable.

EGGS NOT HATCHING.

A little more than a year ago I returned to you a Howard queen-daughter, with the statement that "her eggs would not hatch." Within a week after I wrote you, "Her eggs have been, *since her removal*, hatching."

About two months since, I came across a queen in my apiary that was fourteen days old, with a large patch of eggs deposited in one comb, and I marked her "laying." A week after that I again examined the colony, and was surprised to find there was no brood nor larvæ sealed; but again, I saw a good space filled with eggs. I waited again a week, having in remembrance the queen I returned to you, and hoping her eggs would finally begin to hatch; but at the end of this week I again found only eggs; and on Nov. 4 I killed the queen, to be followed by regret that I had done it, when, on Nov. 8, I found larvæ and queen-cells started, which duly matured, but too late, I fear, for the fertilization of the young queen. I believe such cases have never been published before, but I am without any doubts as to all the facts given above. I do not know what became of the eggs, whether they hatched and were immediately carried out, or eaten by the queen, workers, or drones, until the removal of the queen inclined them to a more sensible course. I am inclined to think that this is the explanation, for there was not more than one larva to five eggs which the queen left in the comb at the time of her removal. The colony in which this has just occurred was a very strong Palestine stock, entirely too wicked to "fool" with until after I had destroyed a virgin queen which had accidentally been allowed to hatch, and destroy the "grafted" Carniolan cell; since that they have been comparatively easy to manipulate. The colony has to-day several hundred drones in it, and I fear a virgin queen, for there has been only one day when any number of drones have been flying, and then the queen was but three days old.

PREPARING BEES FOR WINTER.

I have no new thing to offer on this subject; but judging from the many colonies lost every winter in every section of the United States and Canada, because of ignorance or carelessness on the part of apiarians, I think the cardinal points of the subject should constantly be presented in Gleanings. There are three of these.

1. Contraction. This is never to be neglected where a hive as large as the Simplicity is used. If the colony is one of the strongest, I would remove three of the lightest combs and substitute division-boards. If the colony is weaker, remove enough frames to *crowd* the bees on the remaining combs; or if the colony will only fairly cover one comb, remove all but one comb.

2. Stores. In this provision the important thing to attend to is to see that there is an abundance. Give me a single comb as full of pollen as you can get it, and I will take enough bees to thoroughly cover it, have them store syrup over the pollen by building out the comb, and I will insure as good wintering of the colony as can be had with any other stores. As food, I should prefer granulated-sugar syrup to honey; and as I can always sell honey and buy sugar with profit to myself, I never feed honey back.

3. Ventilation. As illustration, take four colonies, like the very weak ones referred to above, there being only enough bees in each to thoroughly cover one comb, and this one full of syrup as directed above. I take a two-frame nucleus hive, make through its center a division by means of new enameled cloth, place a colony with one frame on each side of the division, covering each with two folds of strong canvas. I prepare another nucleus hive as above, but remove the bottom, placing this one on top of the other one, but with its entrance reversed. I pack them both, with their four queens and retinues, in a box with ten inches of space on every side, preparing entrances ⅜×1 inch, diverging toward the outside so that they will be ten inches apart. I will now carefully pack them with chaff around and above, and leave them undisturbed out of doors all winter. Of course, it must be seen to that the roofs do not leak, and a hole should be made at either end of the box just under the lid that would admit air but not rain. If the packing of these nuclei is undisturbed, the same principles can be easily extended to the larger colonies. It is not unusual to experience a temperature here of 4 to 5° below zero; hence in this latitude I am not in favor of cellar wintering; but if I were in a much colder one I should be. I winter strong colonies in the single-walled Simplicity hive, without any packing, except to replace the enameled cloth above, with a chaff cushion, having only attended well to the two first cardinal points; viz., contraction and stores. If there is but one nucleus colony

in the apiary, put it on one comb in a hive having space only for one comb; pack it in a box with ten or twelve inches of chaff all around, above and below, and it, too, can be saved. I have tried these experiments for ten years past, and I know wintering bees can thus be made successful, even when the colony is but a nucleus. I have 50 colonies in my Carniolan apiary. S. W. MORRISON, M. D.

Oxford, Pa., Dec. 7, 1885.

Friend M., the fact you mention in regard to the preservative power of honey corroborates what friend Muth says in reference to its use for pork-packing, if you will excuse the illustration.—What you say about eggs not hatching has been up once or twice before; but I believe we have no good explanation of the reason why eggs sometimes fail to hatch for quite a time, and then all at once begin to develop larvæ all right. Friend Doolittle wrote an article on a similar subject some years back.—I agree with you in regard to preparing bees for winter; but we have not been successful with two-frame nuclei, even when prepared very much in the same way in which you direct.

AN A B C SCHOLAR'S EXPERIENCE.

17 DAYS FROM THE EGG TO THE BEE.

I WAS but a novice in the spring. I never owned a colony of bees before, but by the information of GLEANINGS and A B C I have increased from 1 to 3 by artificial swarming. I commenced very late, on account of the weakness of the old colony, then being careful not to lessen the old stock, in my judgment, below thirty thousand, so as to have surplus honey for home use. I was reading and putting this to practice, and I found no deviation but this; you say: "Twenty-one days elapse from the egg to the bee." Well, here is my experience: I put down the date of every thing I undertook. June 24th I placed two empty racks, without foundation, in the old hive, and took them out July 13th, and young bees were coming out of their secluded spot, and moving among the busy throng while I held the racks in my hands, and there was evidence that some hatched a day, or perhaps several days, before near the top-bar of the rack, and had been replaced with eggs, so this makes but 19 days, and perhaps 17 days, from the egg to the bee, although you say there are exceptions.

Now, here is the question: I see two colonies are full below of beautiful capped honey, while the last one is full with comb, but none capped, so I gave them a rack of capped honey from another hive, and, to my surprise, I found that they uncapped every cell and removed most of the honey, and the queen laying in them. Why is this? Can they winter safely in this or not? S. R. BRINER.

North Springfield, Ohio.

Friend B., I do not know where the mistake comes in; but I am just as sure you made a mistake, as if you had told me you planted corn one day and it was up two inches high the next day. As you state it, it seems very hard to tell where the mistake came in; but these dates are so well established, by thousands of careful experiments, that I should think it more probable somebody swapped those combs without your knowledge, than that a perfectly formed bee was hatched in the time you mention. Of course, it does not seem very likely any one would meddle with the combs in your hives; but you know it is possible. Try the experiment again, and see if I am not right. Exceedingly favorable circumstances may shorten the period perhaps 24 hours. The way to count is to mark the very hour the queen laid the eggs; and then watch when these same eggs produce perfect bees.—Bees will very frequently uncap the honey when a frame of capped honey is put into the hive. They are more likely to do this when they have no capped honey of their own. I do not know why they do it, unless it is because they recognize it is not their own work, and they want to look in and see if it is all right. Young bees, which have not much to do, are particularly up to such tricks.

SOME GLEANINGS FROM GLEANINGS.

WHEAT CHAFF; CLIPPING QUEENS' WINGS; SOLAR WAX-EXTRACTORS.

IN GLEANINGS for Nov. 15, p. 766, Ernest speaks of the difference in value of oat and wheat chaff. This point, which he just brought up, is exactly the one which I have told in your and other journals. My experiments proved, many years ago, that there is little or no difference in the various kinds of chaff so far as protection from cold is concerned; but the difference is very marked as regards retaining the moisture thrown off by the bees. I find the different kinds of chaff are valuable for this quality of not retaining moisture, in the following order: Timothy, wheat, oats, and buckwheat chaff.

TWO QUEENS, NOT RELATED, IN ONE HIVE.

On the same page Mr. Broers, in speaking about two queens in a hive, takes it for granted that they are both the original queens that were hived with the swarm in April. As no observations were made in this case between April and October it is more than probable, in my opinion, that both of these queens were not the same ones seen in April, but that one of the queens seen last was a young queen raised late in the season, to supersede the other. The fact that the queen being superseded was less than a year old, and a perfect one, is no reason why the bees might not be superseding her, as they occasionally act on just such foolish notions as that would be.

DISTURBING HIVES AFTER A QUEEN HAS JUST BEEN INTRODUCED.

I see, on p. 770, that even as accurate an observer as our friend Hayhurst usually is, he makes the old statement about the danger to a lately introduced queen in opening the hive before she has got to laying. I have never yet known of having lost a queen under these circumstances, although it has been my general practice for years to open hives the first opportunity I have after introducing my queens, and I have certainly opened scores of them before the queens commenced to lay. I presume, however, that the manner of opening the hive has something to do with it. I certainly shouldn't open them, if the frames were stuck so they would have to be pried apart with a chisel, nor if robbers were about.

CLIPPING WINGS—HOW.

I also see, on p. 773, that friend Doolittle still advises catching the queen with the fingers while clipping her wings. I have clipped the wings of certainly more than a thousand queens with scissors, and have clipped off just one leg of a queen while doing so, and I have no fears of such a "happenstance" occurring again. I couldn't see in that case that the loss of a leg caused the queen to become less valuable; but even the accidental clipping-off of a leg is not advised. It is now years since I abandoned the method of holding queens with the fingers while clipping their wings, and I think that no one who gives tweezers a fair trial will ever return to finger-catching. I use, for that purpose, a pair of sharp-pointed tweezers, such as jewelers use, with which I catch and hold the queen by a wing while clipping. You keep the right kind of tweezers for this work on your ten-cent counter; but only the ones with sharp points are suitable for this work. I have described this way of using tweezers before; but if Mr. Doolittle has overlooked it, many others must have done so too.

SOLAR WAX-EXTRACTORS.

On p. 775 friend Israel, of California, describes his solar wax-extractor, which is on the same principle, but not so good, as the one I described nearly three years ago in GLEANINGS. That old sacking he speaks of laying in the bottom of the extractor, and which seems to be such a favorite idea with many, is not only absolutely unnecessary, but would almost ruin the efficiency of the instrument in the latitude of our Northern States. It will work better, of course, in California, or any of the Southern States; but even there it is more damage than good. In our Northern States we have to utilize all the heat from the sun's rays we can, and we can not afford to let old sacking or any other unnecessary article absorb any of the heat. The object for which the sacking is used is arrived at by dipping off the melted wax, as described in the original article referred to (page 521, 1883).

Another mistake made by friend Israel, I think, is in allowing the wax to remain in the dish, or receiving-pan, for several days, instead of removing each day. Wax becomes perfectly clarified in a single day, and any further exposure of it to the sun simply results in hardening and bleaching the wax. I have used these solar wax-extractors about ten years, and am foolish enough to think I know something about them. I was in hopes, when I wrote my first description of them, that they would be materially improved by some one; but so far, all published experiments seem to be in line with the one we have just criticised. What is wanted, in the latitude of Northern Iowa, at least, is some device for increasing the power of the sun's rays, and not something that will absorb some of those rays. I wish, friend Root, that whenever a description of some straining device is sent in, you would call attention, in your foot-notes, to the fact that, while such devices are practically unnecessary anywhere, they are a positive damage in the latitude of our Northern States.

WHERE IS HAWK'S PARK?

Quite a number of bee-keepers have asked me, both verbally and by letter, "Where is Hawk's Park?" "How far from New Smyrna?" Hawk's Park is a newly established postoffice about three miles south of New Smyrna, in Volusia Co. Nearly or quite all the bee-keepers in this section used to get their mail at New Smyrna, but about a half of them have changed their mail to the new office. Messrs. Sheldon, Detweiler, Dr. Goodwin, Lewis, and others, are at New Smyrna, while Hart, Hardee, Oleson, Mitchell, Packwood and others are nearer Hawk's Park. Both places are on the shores of the Hillsboro River, or lagoon, a sheet of tidal water, and about two miles in a direct line from the ocean-beach. Steamers come into the river from the ocean at the inlet, some seven miles north of this place.

O. O. POPPLETON.

Hawk's Park, Fla., Dec. 7, 1885.

Many thanks, my good friend P., for your kind suggestions and criticisms. No doubt we have overlooked the facts you gave us in your former valuable paper, but we will now try to "make a note of it," so it will not slip our memory so easily. We shall proceed at once to make experiments in regard to solar wax-extractors.

ALMOST BURIED ALIVE.

A STORY WITH A MORAL TO IT; LAYING TILE.

I AM feeling tolerably stiff and sore this evening, but will give you an item of interest. I am now laying a 10-inch tile from the north-west corner of my 8½-ft. cellar that is dug in a dry bank of sand. We found evidence that the blue-grass sod and hard streak of clay at the top had not wet through this summer or fall. The dirt, or sand, after it got two or three feet from the top of the ground, was as dry as it would be were it under a good roof, for nearly a rod from the house, then it got damp, when it made a "cave" on me. I was down on the tile that was laid, on my hands and knees, when it struck me without warning. We were nine feet deep. I tell you, I thought I was going to be buried alive; for as the weight of the sand increased, it moved me flat down on the tile that was under me; and when I did move a muscle it took up every particle of vacancy, so I soon thought I was in a tight place. Thanks to an active, energetic Irishman, a hand that was helping me, who was raised in the old country, and who knew how to shovel the few cart-loads of sand that struck me, I was got out before the rest of the bank fell in to about 6 feet deep. I say I was got out, for no one knows how a strong or tolerably strong man's strength is taken out of him till he is crushed under a few tons of bank sand.

I write this, as it has its own moral, though some may think it of no use to bee-keepers; but all do not work with bees only, who keep bees; some are farmers, as I am, who was raised on a farm, and have to do such work as his hands are not used to doing or can not do. We found the black ants 6 feet in the sand, where frost will never reach them, in great numbers. Where they had burrowed it looked like a very comfortable place for them to winter, so they could eat honey next summer. They ate lots of it, I guess, last summer, but they rather prefer the sugar-barrel, I think, to honey. I will close by saying we have over 100 feet of tile laid 9 feet at the house, running to 7 feet where we are now. I think we shall get in 200 feet. You would hardly think one man could throw out such a large pile of sand and dirt in three days. I have helped some to-day, but was bothered a good deal to have the tile carried to me and handed down (ditch 2 to 4 feet at top, and where it caved in it was some two rods). J. D. ADAMS.

Nira, Ia., Nov. 25, 1885.

Friend A., I should suppose, from the size of your tile, and the depth you were working, that you intended it for a sub-earth ventilator. My experience has been, that such sandy soils as you describe seldom need tiling at all, unless there are springs. I hope your experience may be a warning to our readers when digging in the ground at such a depth as you mention. In our clay soil there would have been no trouble. I hardly need say, that great numbers of good people have lost their lives in a manner similar to the one you describe.

SOME QUERIES FROM AN A B C SCHOLAR.

DOUBLING UP, ETC.

ERNEST R. ROOT:—I am so pleased that you have begun a series of articles, "Our Own Apiary," in GLEANINGS, that I am going to sit down and tell you so. I am just an A B C pupil in bee-keeping. I began with one swarm late last year. There is so much I want to learn, I am often puzzled to know the best way of managing my bees, and I think I wish I knew just how they would do in Mr. Root's apiary; for though I read most of the articles in GLEANINGS from different writers, it some way seems to me that Mr. Root's way is usually the most easily understood, the simplest, and most practical. And now your articles are going to be a help to me.

In your first article you say, "Doubling up has already commenced." Now, undoubtedly, that is perfectly understood by apiarists who know their business; but, will not Ernest, or some one else, through GLEANINGS, be kind enough to explain, for the benefit of myself and others just beginning, just how that is done—every little item precisely? Suppose you have two small swarms of cross hybrids in Simplicity hives, and you wish to unite them into a chaff hive for winter; what is the first thing —smoker, bee-hat, or neither? You can not get all the frames into the new hive. Do you alternate a part of them, and brush the bees from the remaining combs in front of the hive? Do you hunt out one queen and kill her, or let the bees do that? Would you set the chaff hive where one of the old ones stood, or in a new place? Very simple questions, no doubt, to one who has worked for years among bees, but not so much so to one who knows but little about them. Also please tell me, how do you know when a colony has stores enough for winter? How do you know when they have 25 lbs.? Guess at it? You surely do not take the trouble to brush the bees from every comb and weigh it, do you? Do snails do any harm to bees? After a swarm has filled the brood-combs, and you have put on one layer of sections, and they have nearly filled them, is it better to add more sections above the first, or remove the first and place new ones with foundation starters in their place? How do you get your extra frames of honey that you save in case the bees need them? Do you use a Simplicity hive on top of a chaff hive, and put brood-combs in these? When you want to form a nucleus, how far from the old hive must you place the new one? Which is better for packing—wheat or oat chaff? My husband says he thinks the wheat chaff would keep dryer, but it seems to me the oat chaff would be warmer.

I use the Falcon chaff hive, which is made at Falconer's, seven miles from here. It is packed with fine shavings, and so are the chaff cushions. Do you think shavings would be as warm as chaff?

I have not as yet made my bees very profitable. Increased from one to two last year, and wintered nicely. This season they increased from two to six, and took up about 70 lbs. of beautiful section honey. I am learning all the time, and I think I can manage them much better next year.

I am going to try Mr. Heddon's plan, and Mr. Doolittle's, for preventing after-swarms. I think either one will work nicely.

My only bit of bad luck with my bees so far is the loss, just before basswood-bloom, of my best swarm, and a tested queen I sent to you for. And, by the way, she was such a nice queen, and came through in splendid condition. Some four days before, I had taken three frames of bees and brood and put in a new hive. I put the queen on a frame of honey-comb in the cage, and hung it in the hive. In less than half an hour they had worked the comb away and let her out. In four weeks' time—perhaps two or three days over—they had filled 7 brood-frames and nearly the side sections, then sent out a nice swarm, and left a fair quantity of bees in the hive. I hived them and they seemed contented, and went to work. They stayed that day and the forenoon of the next; but toward night, when I went out to look at them, behold, they were missing. The weather was very warm, and the hive not shaded. That was probably the reason why they left—rather an expensive lesson, and I was so sorry to lose my nice queen! Perhaps if I had known just how, I might have clipped her wings at first; but it seems almost cruel to cripple the pretty creatures.

Notwithstanding directions for managing are plain in the A B C book, I often wish they were more explicit in little things which I suppose tact and common sense ought to teach me. Perhaps I am unusually dull; but I often think, "If I could only ask Mr. Root a few questions!"

I am much pleased with GLEANINGS, and like it much better because it is not wholly devoted to bees. My children enjoy the Juvenile department, and I read the children's sermons to them. The Home sermons are also read, and I feel thankful that at least one man is trying to prove to the world that religion is our daily life—not that I wish to be understood that there are not many more than one, but the ranks ought to be much fuller, both of men and women, who realize that, every day, home and business life should be our religious life.

I always read Mrs. Chaddock's letters. There is much lively human nature in them, and they demonstrate to me that other farmers' wives in the land are busy, and trying to make the best of surrounding circumstances, as well as myself.

I also feel that I should like to thank Mrs. Culp for her letters, teaching us Christian charity, love, and trust.

Count on me as a subscriber as long as my bees make honey enough to pay the subscription price.

Fluvanna, N. Y. SARAH M. BENTLY.

"Doubling up" is only another name for

uniting. The A B C under this head, page 271, gives the precise method of doubling up, or uniting, that we used in the apiary this fall. As to the rest of your questions, I will leave it to father, for it takes an old head to answer questions, though of themselves seemingly simple. ERNEST.

Many thanks, my good friend, for your kind words. I am glad, also, to know that you like the A B C book because it is so very plain, and goes into minute details so much. Some have objected to it on this account; but it seems you want still further details.—In regard to the use of smoker and bee-hat, use them if you find them a convenience, and I presume you will get along better with both, from what you say. In uniting, take the frames with the most brood and stores; and if there are still more containing honey, and the weather is warm, you can put these additional ones in the upper story. I do not think it matters very much whether you alternate a frame, or simply place the two colonies side by side. The most important thing is to be sure the bees do not get to quarreling; and if they do, you must make them behave by using smoke freely until they do behave. You can kill the poorest queen yourself; or if there is no difference, and you have no choice, let the bees do it.—I would set the chaff hive where the strongest of the old ones stood, and take the other hive entirely away, so the bees will not go into it and die when they fly again.—An old bee-keeper will tell by looking the colony over, and lifting the hive, whether they have stores enough; but until you have learned by experience, I think it an excellant plan to weigh them. You can weigh the combs one at a time with a pair of ten-cent spring balances, or you can weigh the whole hive, subtracting the weight of the empty hive and combs. You need not brush the bees away from the combs in order to weigh it. They weigh so little they need not be counted.—Neither snails nor hardly any thing else will harm the bees if the colony is a strong one.—We give the preference to the wheat packing, for the reasons you mention. Fine shavings, prepared just right, will probably answer nearly or quite as well; but all things considered, we have preferred the chaff. Had you given your new swarm a frame of brood, as we so emphatically advise in the A B C, I think you would not have lost them. — We do not practice clipping queens' wings now.

AN INTERESTING LETTER FROM AN A B C SCHOLAR.

QUEEN-CELLS BUILT IN A HIVE WITH A LAYING QUEEN.

WILL you listen to an A B C scholar a short time while he reports his experience with bees? In the spring of 1881 my father had two swarms of hybrids in L. hives. I became interested in them, and sent for an A B C book. I increased them to five colonies, but they were so cross I concluded that I must have Italians. I sent to you for five "dollar" queens. They came all right in Peet cages. I caged the old queens and fastened the new ones on the combs, as directed. The next day I looked them over, and found that they were all out, but I found something else which almost made me feel weak — every swarm had started queen-cells. Well, thought I, they are all dead; just my luck, exactly. I am glad I saved the old queens. I can put them back. There is some consolation in that. I put one of the queens among the bees, when one of them grabbed her by the wing and tried to sting. I caged her immediately, closed the hive, and sat down, completely "stumped." I didn't know what to do. Perhaps you can imagine how I felt. I can't describe it. I saw bees and queens all that night. The next day I thought I would try to give to another hive the old queen. I opened the hive, lifted out a frame, and right on the center was the new queen. She seemed, to my astonished eyes, to be about four times as large as the one I had introduced. She had commenced laying. I went to the other hives, and found the same condition of things. I looked in the A B C book, but I failed to find any mention of bees starting cells with a queen in the hive. On page 192 I found it said, that "it is a sure indication of queenlessness to find a nucleus building queen-cells." Well, thought I, this is not a nucleus; perhaps that makes the difference. All the queens proved to be purely mated and very prolific.

I have worked away from home since then until this summer, when, being at home again, and finding three swarms alive (one, by the way, contains one of those dollar queens, as lively and prolific as ever), and having lost none of my interest in bees I thought I would raise some queens and make nuclei of the old dollar queen's swarm, and build them up and so get more bees and experience. I have the experience; and unless I have some more unexpected trouble I think I shall get the bees. I followed the directions, and a couple of days before the cells were to hatch I divided up the old swarm, putting two frames of brood, covered with bees, into each nucleus. The next day I found that they had all started queen-cells, and concluded that the old queen must have got lost in some way. I inserted cells in each, and they waxed them all in; but they did not hatch. In five or six days they all had cells of their own building capped over, except one, and that one contained eggs and larvæ, so the old queen was all right after all. The only reason I can suggest for the cells not hatching is, that the next two nights after I inserted them were frosty, and they might have been chilled. Now, here are some questions: Why did the nucleus containing the old queen start cells, and why did they accept the cell I gave them, and wax it in nicely? Is the rule I have quoted from the A B C book incorrect, or do my bees act differently from every one's else?

A LITTLE STORY WITH A MORAL TO IT.

I am taking GLEANINGS, with one of my neighbors. I think it is "splendid," as the girls say. The criticisms from some of the friends make me think of what I saw in a village last spring. A man was fixing the sidewalk in front of his house. In a short time there were several men around him, telling him how to do it. He kept right on, and fixed it to suit himself. I guess that is the best way.

Rockwell's Mills, N. Y. ELMER D. CORNELL.

Friend C., it is very singular indeed that all five of your colonies built queen-cells while they had a queen, although it is not very unusual for a colony to persist in building queen-cells when a new queen has just been given them, indicating that *all* the members of the commonwealth are not quite satisfied to accept her. It is a pretty hard matter to have the A B C book touch all these minor points.—I do not think that frosty nights would injure a queen-cell if put right into the brood-nest, especially if the cluster of bees were enough to make a tolerable colony or nucleus.—The conditions of your little story are not quite like those of a bee-journal, friend C. The sidewalk belonged entirely to the man. He was not building it for his neighbors who were making suggestions. But a journal belongs to the people; in fact, it is made for them, and they have a right to suggest how it should be made. I am glad to say, however, that the general decision of the people seems to be just in accordance with my own; that is, by far the greater number of friends seem to prefer to have GLEANINGS with a variety, and, I believe, such a variety as I have given. That those who subscribe may not be disappointed, we have changed the front page of our journal so as to read, "Devoted to Bees, Honey, and Home Interests," so as to say we are not getting away from our text, even if we do touch on other industries as they come before the people.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER I.

INTRODUCTION.

IT was a lovely day, late in autumn. The Rev. John Meek had been in his study all the morning, busy at work on his sermons for the coming Sabbath. Looking out on that beautiful Indian-summer day he felt that a walk would do him good; and, picking up his hat and cane, he started forth to take one.

As he stepped through his gate into the highway he noticed some object up the road which he at first thought was a team approaching; but on looking more intently he saw it was not a team, but his two children running toward him at the top of their speed. His wife, noticing him earnestly gazing up the road, came to the gate to see what was the matter; and after a look at the children she exclaimed, "That is our Jane and Tommy. I sent them on an errand to Mr. Brown's. What can be wrong, that they are running so?"

By this time both children were crying out something to their parents; but the children were so short of breath from running, and so eager to tell the tale, that the parents could not understand them. However, they managed to catch the words, "Mr. Brown — bees — keg — killed — home!"

Mrs. Meek remarked, "I fear Mr. Brown's bees have stung him to death."

Her husband replied, "I hope not, but we shall soon learn."

By this time the children had arrived, and began to tell their story, both at once; but Tommy was told to stop and let his sister tell it. It was all about a colony of bees which Mr. Brown had offered them as a present. Mr. Brown was a friend and neighbor, living on a large farm not far from Mr. Meek's house. Although he kept a few bees he made no claim to understanding bee culture. His bees received very little care or attention from him. His hives stood in a row upon a bench in his orchard, and were merely rough boxes, some of which he made himself, while he picked up others around the village stores. He obtained his surplus by boring holes in the tops of his hives, and placing on these some smaller boxes. At the approach of winter, if any colony had not sufficient stores the bees in it were killed and the honey taken. Mr. Brown had been examining his bees that morning, to see what stores they had. He found all well supplied but one, which came off very late, and which, for want of a suitable box, he had placed in an old nail-keg. This one he decided to destroy, and was preparing to do so when the children arrived. His children explained to their little friends what their father was doing, and urged them to wait and have some of the honey. The kind-hearted Jane's eyes filled with tears as she thought of the poor little bees in the old keg, peaceful and happy, clustered as usual on their combs, but soon to meet a horrible death.

Mr. Brown's plan of killing bees was to smother them to death with the fumes of burning brimstone. As she watched Mr. Brown digging the brimstone-pit she ventured to say to him, "I hate to think of your killing the bees."

He replied, "I hate to kill them; but they haven't sufficient honey to support them through the winter. They will eat up what they have, and then die of starvation; and surely it is better to kill them now, and obtain some honey, than to let them starve and obtain nothing. I kill them to keep them from dying of starvation."

Jane asked if they could not be fed, and their lives preserved until spring.

Mr. Brown replied, "I believe some people do feed bees, but I do not know how it is done; besides, I have so many horses, cows, and pigs to feed that I can find no time to feed bees. But," said he, "I'll give you and Tommy this nail-keg hive, bees and all, as a present, if you will take them home, feed them up, and preserve their lives. Your father knows something about bees, because I have heard him talk about them, and he can tell you how to feed them."

Jane replied, "I would willingly take the bees, but I shall have to ask papa and mamma about it first."

"Very well," said Mr. Brown; "you run home and ask them, and I will not kill the bees until I hear from you."

The children certainly did "run" home, and, having related the facts in the case, stood waiting for the important question, as to whether the gift should be accepted or not, to be decided.

Mrs. Meek laughed heartily, saying, "Is *that* all? Your pa and I thought, from the way you ran, that something dreadful had happened; and now you say your reason for running was to obtain leave from us to keep bees. Children, I am sure you do not know what you ask. If you knew how bees sting, and how it hurts to be stung, I am sure you would not ask to keep them. I think you had better let Mr. Brown keep them."

"But, ma," said Tommy, "Mr. Brown will kill them. He said he would kill them unless we took them."

"Now, ma, think about the poor little bees being smothered to death with brimstone," chimed in Jane. Then, turning to her father, she said, coaxingly, "Please, pa, may we not keep them? Mr. Brown said we could have them, and welcome, and that you could tell Tommy and me how to take care of them."

Mr. Meek replied, "I was starting to take a walk, and the day is so fine I do not want to miss it. As I walk along I will think the matter over, and I will meet you at the dinner-table, when we will talk it over." With that he walked away.

While Mr. Meek studied his Bible and his books on theology very faithfully, he also studied about many other things. He had read several works on the management of bees. His father kept bees after the old plan, and when a boy he had become familiar with its workings. He thought it cruel to kill the bees in a hive to obtain their stores. In his travels since entering the ministry he had visited many modern bee-keepers, and noticed with gladness the advances which had been made. All the bees near where he now lived were kept upon the old plan. He had often talked to Mr. Brown and others about trying the modern improvements; but they had never been persuaded to try them. He often thought of buying a colony and showing the people around what modern bee-keeping is, in hopes that they might be led by his success to adopt some of the improvements. He knew that the country afforded plenty of bee-pasture. White clover, that best of all honey-plants, abounded along the roadsides and in all the pasture-fields and meadows. He was certain that many thousands of pounds of honey were wasted every year, near his home, for lack of bees to gather it. He also believed it would benefit the children, to have the care of bees. He said to himself, "They will learn something, even if this colony does not live until spring."

His conclusion was, that the children might accept the offered gift. He understood very well why tender-hearted Jane pitied the bees in the doomed hive. When a boy, he himself had often shed tears over the unhappy fate of similar colonies when he saw them placed in the brimstone-pit. As Jane was only ten years old, and Tommy eight, they knew very little about any kind of work, and nothing at all about working with bees. They would need much counsel and help, which he was willing to give, provided they did their part cheerfully.

As they sat at the dinner-table the children were very impatient to learn the decision; but having been well taught they waited for their parents to introduce the subject. At length their father remarked, "I think Mr. Brown's offer a very good one, and we had better accept it."

Jane said, "Oh! thank you, papa; thank you, papa!" But Tommy dropped his piece of bread and butter, and, clapping his hands together, said, "Good! good! good!"

It was always his custom, when much pleased, to dance around on one foot, clapping his hands together, exclaiming, "Good! good!" but as he was now sitting at the table he could not very well indulge in the dance on one foot.

Mr. Meek continued, "I allow you to accept the offer, for various reasons. One is, pity for the poor little bees doomed to die. They are now under the sentence of death, and will be killed unless we take them and save them. Another is, that you children may learn how to keep bees. The art of bee-keeping is a trade. If the bees live, and you care for them, you will learn this trade; and the knowledge you will thus acquire may be very useful to you in after-life. Another reason is this: I should like to set before our neighbors and friends the example of a well-kept bee-yard. I am sure that many colonies of bees might be kept in our vicinity; and I think if I could show the people how to keep them profitably, I might advance bee culture in this neighborhood. And now, Jane and Tommy, I want you to remember that Mr. Brown gave the bees to *you*. *You* are the owners of them; *you* are the bee-keepers, and *you* must do the work. *I* will direct you what to do, and will help you do what I think too hard or too difficult for you. You must, in return for my services, furnish us some of your honey for our table."

We can not record all the conversation which lasted through the meal, and was continued after they had left the table. They then went out into the yard, selected a spot where the hive should be placed, and prepared a stand on which to place it. Then the question arose, how best to remove it. Mr. Meek's advice was asked. He said, "There is in our barn a large sack. It will hold a nail-keg nicely. Take it, put the keg into it, then tie it securely. Take the buggy, place the keg it the buggy, and drive carefully home, and not a bee can escape to trouble you. When you place the keg in the buggy, be sure to turn it bottom up, and then the combs will not be so likely to break."

Thus equipped the children drove away about sundown, and a little after dark a shout at the front gate announced that they had returned with their precious load. Mr. Meek went out, and carried in the hive. He thought it best not to open the sack nor place it on the stand until all the bees had crawled back into the hive. He placed it in a position favorable for their doing so; and in the morning, all being quiet in the hive, the keg was gently drawn from the sack, and placed upon the stand. Mr. Meek pronounced it light in stores, the combs not filling more than half the keg.

"They must be fed," said he; and as it was now late in the season, no time was to be lost. The children prepared feed after directions given by their father. They possessed a dollar, which they expended for granulated sugar. They then made this into a thick nice syrup by adding some water, and heating it. A tin pan was borrowed from their mother, filled with this feed, a little warm, and the surface of the syrup was covered with little strips of pine, split from the kindling-wood, to keep the bees from drowning in it. Jane then stood behind the hive and gently tipped it back, while Tommy slipped the pan of feed upon the bottom-board; the hive being then let down he covered it and kept out robber-bees.

In the evening the children took the horse-blankets and the buffalo-robe and covered the hive, completely protecting it from the cold, and enabling them to take up the feed. The feed was always warm when placed in the hive; and being thus protected it was all taken by morning. They were thus fed repeatedly. When the dollar's worth of sugar had been fed, Mr. Meek said, "They surely will do until spring, when they can be fed some more if they need it. Now," says he, "they can remain here until the severe weather comes, when we must place them in their winter quarters."

To be continued Feb. 1st.

C. C. MILLER'S REPORT.

TEMPERATURE OF CELLARS AND OF THE EARTH.

As Mr. Root (p. 812) inquires how I succeeded in carting my bees around, and about the honey and money I made, I will try to answer in full. First as to the success of carting around, I consider it a matter of necessity, and would not think of keeping all my bees in one apiary; and as I winter in cellar I am obliged to haul home the bees every fall and take them away in the spring. This I have done for six years, but I never hauled them away at any other time, except in the summer of 1880, when I took them three miles to the edge of a large buckwheat field. I think they did enough better than those left at home to pay for the hauling.

Now as to the result of the year. I'm not proud of it. I don't glow with pride as I contemplate it. Never a glow. Nov. 5 to 12, 1884, I put my bees in the cellars, 300 colonies. March 28, 1885, I began taking them out, and took out the last April 13, making a confinement of 126 to 159 days. By the time fruit-trees were in bloom I had 179 colonies left, a loss of about 40 per cent. I increased these to 340 colonies, and took about 1700 lbs. of comb honey, making 9½ lbs. per colony, and 90 per cent increase. I might theorize and philosophize as to why 40 per cent should have been lost in wintering and springing, but I will try to limit myself mainly to what I know. There were some plain cases of starving—not a drop of honey left in the hive. The winter was very cold—37° below zero at one time, and the cellars were allowed to become quite cold. In one of them the mercury reached one degree below the freezing-point. I will allow myself to theorize far enough to say, that a smaller number in each cellar would have done better—at any rate, they wintered better in former years when not so crowded. I can not tell just how many were alive last spring when taken out, but I think the heaviest loss occurred after taking out. Some dwindled, and some swarmed out. Some of the latter seemed pretty fair colonies, and the deserted hives showed plenty of honey left, and also of brood—perhaps more brood than the bees could cover.

Mine is not a good honey region, white clover being about my only dependence for surplus. Last summer the clover bloom was more abundant than I ever knew it, but for some reason the honey was not forthcoming. When the flow of honey was over, many colonies had scarcely any honey, and one actually starved to death—a thing I never experienced at that season of the year before. I ought to have mentioned, that a great many colonies were very slow about building up in the spring and summer. Soon after the failure of clover I began to feed syrup of granulated sugar, and in all I fed about 1700 lbs., to make them ready for winter.

TEMPERATURE OF CELLAR.

I read your remarks, Bro. Root, on p. 830, with some surprise. You say, replying to J. F. Redd, "Your cellar will very likely run from 58° to 60° in spite of any thing you can do," etc. Is it possible there is so much difference between your place and this, in latitude 42°? I am not sure that I ever knew the thermometer in my cellar to run up to 60° when there were bees in it. I happen to have before me the record of the winter of 1876-7, in which the thermometer ranged as high, or higher, than the average. Dec. 10 it was 35°, and was no higher than 41° till Jan. 29, when it reached 42°, going no higher than 46° till April 1, when it stood at 49°, the highest point it reached during the bees' confinement. So you see in this region there seems little difficulty in keeping below 58° or 60°, and I do not now so much wonder that you prefer outdoor wintering in your locality. I think it is pretty well agreed, that, for best results, a cellar should be kept at about 45°; and the testimony agrees so generally on this point that I suppose for the majority of persons and places it is correct; but I have never succeeded in keeping my cellar to average more than 40°, if that. Indeed, it has taken a good deal of artificial heat to keep it up anywhere near that point. I am not sure whether 5° warmer would be any better; for in the winter already mentioned, 127 colonies were put in, in the fall, and 127 taken out in good condition in the spring; still, three were lost in springing—whether from queenlessness or otherwise, I can not now say. Probably the best plan is for each one who winters in a cellar to note carefully at what temperature his bees are quietest, and be governed accordingly. Is not a cellar with sub-ventilation warmer than one without? The air as it enters my cellar through the sub-ventilating-pipe has been no lower than 43° this winter, although the cellar has been as low as 36°, and outdoors 14° below zero. Later in the winter, the air from the pipe has, other winters, gone as low as 36°.

Since writing the above I have received GLEANINGS for Dec. 15, and read with very great interest the talks about temperature by Bro. Doolittle, Ernest, and yourself. Why should there not be a great difference in temperature between the north and south? After all, the practical questions come, What is the best temperature to keep a cellar? Should it gradually become warmer toward spring? What are the best means to secure the desired temperature? What is the best depth, all things considered, to run a ventilating-pipe? For, Bro. Root, although you prefer outdoor wintering, for many of us in other localities the cellar is the safer place, and answers to the above and kindred questions will be read by us with the keenest interest. If you will try your hand at it, and get others to do so, you will merit, and no doubt get, many thanks.

C. C. MILLER, 179—340.

Marengo, Ill., Dec. 21, 1885.

Friend M., we are very sorry to hear that you have had so poor a season; but before deciding that your locality is not a good one, I would consider the enormous yields you have made two or three seasons in succession, even though you had so large a number of bees in one locality. Would it not be better to take a little of the advice Doolittle gives in the present number, and get larger yields from fewer colonies, or else have them scattered more in different localities? The dwindling and swarming out in the spring seems to be a sort of mania, as we have many times mentioned, when things get to going wrong. We have had, in our locality, bees starve to death in June and July. After such experiences they seem to be always slow in building up.—In regard to my reply to friend Redd, I meant that during a warm night in the middle of the winter (such as we are having now this 24th day of December, and there has been no freezing night or day for three days, and one night was almost as warm as any night in June) the bees would sometimes raise the temperature of the cellar to 58 or 60°. I put this temperature from memory, as I don't know that I made a record; but had you been at the recent convention at Detroit you would have heard about cellars going up to even 90°, and that in Canada. To my great astonishment, the friend who gave this temperature is one of our most successful men in wintering his bees. When questioned, he admitted that the bees came out of their hives and clustered against and all over them, and all between them. But he said they went back all right when the temperature lowered. I have seen just such a state of affairs, but it resulted in the loss of several valuable queens. My experience in wintering in cellar, as a rule, gave about the temperature you mention. You have given us some very important facts in regard to sub-earth ventilation; namely, when the temperature is 14° below zero outside, your sub-earth tube delivered air in the cellar at a temperature not lower than 43°. I do not see why there should be a difference in the temperature of the earth north and south, if we get down deep enough to be beyond the influence of winter or summer—say eight feet deep, or may be a little more. And, by the way, friend M., will you please tell us how low down your sub-earth pipe is laid, and how large it is in diameter? In regard to the best temperature of a cellar, the different temperatures mentioned at the convention preferred by different individuals varied so greatly that it leaves one quite at sea. In the A B C book we have put it at 40°; but we mention there that some of the bee-keepers of York State prefer it as high as 50°. Now, very likely half way between the two, or 45°, will come as near it as we shall be able to agree on.

HOW TO USE THE SOLAR WAX-EXTRACTOR.

THE TEMPERATURE OF CALIFORNIA AS COMPARED WITH THE EASTERN STATES.

ON page 775, in a foot-note to my report you say, "I do not quite understand what you say about extracting honey as well as wax," referring to the solar wax-extractor. I have a case that will explain the operation very clearly. After we had done taking off our honey in August, I was requested by a friend who is in ill health to come down and take off his honey for him. He lives some fifteen miles nearer town than we do. Myself and nephew went down, never doubting but that we could take off the honey from the hundred hives, and house it, in one day. Imagine our consternation when we found there never had been any boxes put in the top stories, and that the bees had built just according to their "own sweet will." Well, we had to cut the honey out of the top stories of that whole hundred hives. We did that in two days, and stowed it away in barrels and five-gallon cans, in the honey-house. Now, you can't sell mass honey here at *any* price, so the only thing to be done was to get all this broken and mashed-up comb into extracted honey. I will here give you the *modus operandi*, remarking, by the way, that a great deal of the extracted honey produced in this county, and country too, is produced in just this way.

A SOLAR WAX-EXTRACTOR—HOW CONSTRUCTED.

A solar extractor is made exactly as you would make a trough out of two boards. This, you see, would produce two angles of reflection. But I made a half-octagon, so you see I have two angles of reflection *on each side*. Now you are ready for your tin lining. This must be all fitted neatly to the box, and well soldered together. Then put in your spout. If you intend to use this spout out of doors it must be of leather or rubber, so you can stick it into the honey-can and wrap a cloth around it, or you may get more bees than honey. Now make a light strong frame, to fit just half way down in your solar extractor. Cover it with wire cloth, well tacked on. Lay on this a piece of clean sacking, for a strainer. Now pile in your honey, keeping it as much in the middle as possible. The reason for this is, that you want the sides clear, to act as reflectors. Put on your sash and stop up your pipe. Of course, no bees must get into this honey, or they will never get out alive. The action of this sun extractor is thus:

The honey and comb both run through the cloth and wire screen into the lower part of the extractor. The honey sinks below, while the wax floats on top of it. The wax gets hard much sooner than the honey gets cold. You can therefore draw off the honey while it is warm, as it will run much easier and cleaner from the extractor. In the evening, when the bees are all in their "little beds," you can take off the sash and lift out the wax in great chunks that would "knock an ox down."

What do I melt small cakes of wax for? Well, I had that ton of honey at the end of the season, that the bees would not seal up. In each box of sections there would be one section at the end whose outside was not sealed up. It was unsalable. I therefore cut that cake out and left the box whole, so that it would pack right in the case. I made these cakes into extracted honey.

It is *not* a fact, that the heat of the sun is much greater here in our climate than it is in the States. In fact, it is not, to use a common saying, "half as hot." I have known *nights*, both in Pennsylvania and Ohio, that I think would have come pretty near to melting beeswax; nights when the denizens of great cities had to crowd out of doors to get even a breath of free air. The thermometer here generally ranges from 50 to 70° in the winter, and from 70 to 85° in the summer. It rarely gets up to 90°. *This* summer it was exceedingly hot — got to 90 several times. People thought they were burned up — entirely consumed. To-day I am melting beeswax, with the thermometer 70° in the shade. It is running in a swift stream about the thickness of a very thick darning-needle.

It is very singular to me that you can not melt beeswax there, with a temperature of from 85 to 105°, as you have it in the summer. Very singular, too, that you have to make shade for your hives, to keep the honey from melting down, and yet can not melt wax under glass, with a bright tin bottom and sides as reflectors. We don't have to shade our hives here. There is not one hive shaded in ten thousand, in this county. They are all ⅞ lumber at that. This speaks as loud as the thermometer, does it not? If you make your solar extractor right, and *can't* melt beeswax in it, it must be — climate. Ah! there we have got you. The only climate worth talking about is here. No other climate on the broad globe will melt beeswax with the thermometer at 70°. I am so glad! This—this is happiness.

——Italy,
With all her sunshine and her wealth of flowers,
Can never be thy equal. O'er her lowers
Malaria's gaunt and naked form. The sea
That sweeps her shores is not like this of ours.
She is not, then, thy peer, nor e'er can be,
O thou unclouded land along the sea!

J. P. ISRAEL.

San Dieguito, San Diego Co., Cal., Dec., 1885.

Friend Israel, I beg pardon, and own up, but some way I had got the idea into my head that your summers are much hotter than ours.—See what friend Poppleton has got to say about solar wax-extractors, on page 16. Truly there is a great deal to learn in regard to solar wax-extractors and some other things. That reminds me of what somebody said when Horace Greeley wrote his book, "What I Know about Farming." They said it would take a great deal larger book to hold what Horace Greeley did *not* know about farming.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

KANSAS CHIPS; KIND WORDS FOR GLEANINGS.

LAST spring I purchased three colonies of Italian bees (this being my first experience in the business); and during the spring and summer they were very "good natured," and we got along very pleasantly; but after the honey season commenced in July they became very cross, and, like Josh Billings' mule, "seemed to take especial pride in exhibiting the part where their strength lay." I suffered myself to be stung for awhile; but it finally got old, and I donned the veil and gloves, then I had them; and unless their disposition changes, or confidence in myself increases, I think I will keep on the safe side in the future. But I hope that, with Prof. Cook's Manual, and GLEANINGS, as counsel, and the veil and gloves for protection, I shall be able to succeed.

Apiculture is an experiment in this Western country at present; but I think, by raising sweet clover, alsike, and buckwheat, we may be able to make it profitable, to some extent at least.

I now have seven colonies—four new, and the three old ones. They are well stored for winter; but the new ones, being rather late, are not as strong as I should like.

I prize GLEANINGS very highly; and while I continue to try to handle bees I will be a subscriber; so that, when I say "stop," you may know that I am stung out of the business.

The supplies ordered of you all came in splendid condition, and gave perfect satisfaction. The foundation I thought very fine.

I am wintering in cellar. I did not get any honey this season, it being very wet here.

Jewell City, Kan. D. A. ATKINS.

A BEGINNER'S ENTHUSIASM; MOTHS; SCORCHED SORGHUM, ETC.

About nine years ago I paid five dollars for a large swarm of hybrids in an old American hive, with two or three frames of brood and honey, to start with. I also procured an old volume of King's text-book on bee-keeping, in connection with a few copies of King's periodicals. In perusing these books my enthusiasm for bee culture was aroused. It was here I first noticed A. I. Root's advertisement of GLEANINGS and supplies. His talk was quite homelike—so reliable, and not puffed up. The idea that he opposed patents—all things free—was so much to my taste that I at once sent for a sample of GLEANINGS. The sample came and I investigated until my enthusiasm caught to a flame. I was soon a subscriber to GLEANINGS, and really calculated the time that I should have 100 colonies, of thousands each, of living beings to gather in the luscious sweets of the country, and place it right at my feet. But, alas for a continued burning ambition without some realizations! I have barely succeeded in keeping the flame aglow. The burning is really painful at times. If apiculture is ever a success in these parts it will be of a cultivated source. Hitherto the profit (which consists mainly of "anticipation") does not cover expenses.

Last fall, a year ago, the "water" being dried up in my mouth for the taste of honey (hopes being blasted), I decided to try the queen business, and sent to friend Root for a choice imported Italian queen, which proved a "daisy" with me. Early last spring the yellow bands began to appear, and in a short time I had a full corps of Italian workers. Here my hopes took another "boom," as they seemed to work with more determination than I had been accustomed to see. In spite of the bad season last year, these bees did better, every way, than usual.

ITALIANS A SURE CURE FOR MOTHS.

Tell all who are troubled with moths, to Italianize. I firmly believe, if I were to place a frame, riddled with moths, in the midst of one of my hives, the bees would carry it out in less than two days.

SCORCHED SORGHUM.

Last fall I went into winter quarters with five stands, in good trim, as I thought. In the after part of the winter I noticed the bees of one hive coming out, at every warm spell, and perishing on the ground in every direction. By investigation I found solid sheets of sealed stuff which tasted like scorched sorghum. A part of the stores seemed to be grains of sugar, and some thick water mixed. When I overhauled the other four hives I found this watery substance would run out of the combs when tilted over. I threw a great deal of it out with my hands. A. P. STAIR.

Whitney, Ala.

RED ANTS KILLING QUEENS IN THE CELL; SIMPLICITY CHAFF HIVES.

My bees have acted very strangely indeed. One colony, consisting of a first and second after-swarm, cast a swarm; and no one being near, it flew away. When it was time for the young queens to hatch I examined the hive and found that the bees were tearing down the queen-cells, so I began examining those not torn open, and I found that, in every case, the immature queen was dead, and the cell infested with very small red ants, hardly visible to the naked eye. Do you think that the ants destroyed the queens, or did they get in after the queens died? I believe they killed the queens, else why should every cell be infested, and every queen dead? About a week afterward I gave the colony a hatching queen, and three days afterward there were eggs in all the combs but one.

On the 6th of Sept. an absconding swarm from a neighbor entered a hive containing a swarm. They killed my queen, and, having brought none with them, they had to wait until some of the cells (a number were already capped) should hatch. In the mean time I divided them. On the 13th the colony above mentioned cast a swarm, which I put in with a nucleus, but about half of the bees went back to the old hive. A day or two afterward another swarm issued and absconded. This all happened during a great dearth of honey.

Bees did very well on buckwheat, goldenrod, aster, ironweed, smartweed, and another weed that grows in damp places or on low lands, to the height of two or three feet, and has a bushy top, thickly set with small white blossoms. Stocks that had scarcely any honey have now enough for winter.

The select tested queen I bought of you is doing nicely; she has quite a large family of her own raising.

I have made a *simple* chaff hive as a kind of experiment. It is made just like a Simplicity, except that it is four inches longer, and the rear end is fastened in with three wood screws in each side, so as to be movable. When you wish to pack up your bees for winter, take out the screws, move the end-board back, and put in the screws. Slip in two 2-inch crosswise chaff cushions (made like your chaff-cushion division-boards), then a chaff cushion on each side; hang in your 7 frames of bees and stores; put on the winter covering, and, presto, you have a chaff hive all complete. What do you think of it? Has any one ever tried a hive of this description? If you think it worth naming, call it a "Simplicity chaff hive." **Alwin S. Heim.**

Chandler, Ind., Oct. 9, 1885.

For many years we have had reports in regard to red ants destroying queens; also in regard to their propensity to bite into queen-cells and destroy the inmates. We have learned some sad lessons in losing imported queens by leaving the cages containing them where the ants had access. You will find a foot-note referring to the matter, in the A B C book. I have known ants to do considerable damage where combs were left uncovered by the bees—especially combs containing queen-cells; but I do not know that we have had a report before where they invaded the hives. Very likely your hive was left comparatively unprotected, by casting a heavy swarm. In such a case I would try to find the nest of the red ants and treat them to boiling water or turpentine.—Simplicity hives made with a movable end-board have been suggested before. The objections are, that where you find it but little labor to fix over one hive, or, say, a small number of hives, with a large apiary you would find it, I think, altogether too much machinery. Another thing, such a hive is much more liable to be invaded by frost than the regular permanent chaff hive.

510 COLONIES IN WINTER QUARTERS.

I suppose you know we are in the bee-business pretty heavily, having gone into winter quarters with 510 colonies, kept in six different yards, or apiaries. We have a great many letters of inquiry about our management of bees in so many places, and why we don't write more for the papers, etc. Now, if you wish I will try to talk to the friends some this winter through Gleanings.

Plattevile, Wis. **Edwin France.**

To be sure, we know you are one of the big bee-keepers, friend F., and we are always glad to get reports from those who have such large experience as this number of colonies must give. Send us on your talks, and we will at least try to pay you for the time and trouble it takes.

CAN HONEY BE ADULTERATED WITH GRAPE SUGAR, AND NOT BE NOTICED?

I mail you a sample of honey (?). I bought it for white-clover honey, as advertised in Gleanings for September 15. It has occurred to me that something similar could be made of grape sugar and water with a greater or less proportion of honey; but I reserve judgment until I hear from you. What I wish to ask is, Would you be willing to sell this honey to your customers for pure honey? By giving your opinion you will greatly oblige.

Mt. Vernon, Iowa, Nov. 6, 1885. **Oliver Foster.**

Friend F., the sample of honey you send is about the nicest clover honey I ever tasted, and its being candied so perfectly white and solid is the best proof of its purity. The addition of even a very small quantity of grape sugar, by some means which I can not explain, *prevents* candying, instead of hastening it. Two or three years ago Prof. Cook made some careful experiments in this matter. The addition of grape sugar also gives the honey a peculiar flavor, which I think I should recognize readily. I am sure the honey from the friend you mention is absolutely pure; and, by the way, ought we not to be very careful about letting such ideas get into our heads? In regard to adulteration, if we as bee-keepers have not charity and faith in our fellow bee-keepers, how shall we expect the great world at large to hold fast to the beautiful thought contained in the sermon on charity—"thinketh no evil"? During the past year a great many samples have been sent to me, asking if I did not think such a sample was adulterated; but every single sample, so far, I have pronounced pure honey; and, what is still more strange, the most of the samples have been *extra* nice honey.

BEE-KEEPING IN THE REGION OF LAKE SUPERIOR.

As I think it probable that you never have had a correspondent from this region, and have probably no idea that bees can exist, or that they have ever had a chance to up here, I send you a few lines.

The bee business is in its infancy in this region of country; and whether it will ever get beyond that is generally conceded to be an uncertainty. I think that there are not more than fifteen hives of bees in the upper peninsula of Michigan. I have started in the business to make a success if I possibly can. I got two hives from Own Sound, Ont., last June. I have now four as the result. I have put my bees in the cellar, as our winters are more severe than yours, although a neighbor of ours is going to try his out of doors. What I fear the most is our late cool springs. Am I correct in thinking the snow ought to be mostly or all off in the spring before taking the bees out? **R. N. Adams.**

Sault de St. Marie, Mich., Nov. 19, 1885.

Friend A., as a rule the weather is hardly fit for bees to fly before the snow is all off, but circumstances may alter the case. We have occasionally a season when bees work quite industriously while considerable snow remains in the fields. Where there are high hills or mountains, the bees often work in valleys while snow covers the high lands.

SWEET CLOVER NOT YIELDING NECTAR.

My neighbor sowed about ½ acre in sweet clover last fall, and now it is in full bloom. He says there is not a bee at work on it yet, and it has been in bloom for 10 days. Can you tell us why they are not at work on it?

I commenced this spring with three colonies, Italians, and they have increased to 14, all in good condition now, and plenty of honey besides. I had 15 colonies of black bees in the spring, and they have increased to 28 colonies, and three of these colonies did not swarm at all, so I have about 42 colonies in all from 18 in the spring, and all natural swarms. I have no report yet on honey. **R. S. RAINS.**

Lovelady, Texas.

Friend R., we have had the same experience with sweet clover, but the next season it seemed to yield honey bountifully, and has every season since that. Sometimes the bees will not touch it while basswood or red clover is yielding, but they go on to it in great numbers as soon as the honey from these sources is gone.

THIN SECTIONS TO HOLD A POUND—HOW LARGE?

I want to make a section box 1 7-16 inches wide, of such size as to hold a pound. Can any of the readers of GLEANINGS give me the necessary information? How near will 4⅝ x 4⅝ x 1 7-16 be to the right size to hold 1 lb.? **W. S. VANDRUFF.**

Kirby, Pa., Nov. 19, 1885.

Friend V., it all depends on whether you expect to use separators or no separators. Without separators, I think the size you give would be pretty nearly right. If separators are used, you will want it, I should say at a rough guess, nearly 5 inches square; for 7-16 is no thicker than a good many brood-combs where honey is stored in the upper part.

A BEGINNER'S EXPERIENCE IN TRANSFERRING.

I must tell you about my progress at beeing. First my father kept bees for about 20 years, always afraid of them, and never took any honey, only "maby eight or nine pound" a year from seven or ten swarms; so I read A B C, bought a smoker from you, then I tackled the box hives and shook the bees in a Simplicity hive that I made. I took one hive of bees in the wood-shed, and was going to transfer (by book form), but I had trouble in getting the side off the hive until one bee took me "kazip" on the ear, then I settled to "biz." I got "astraddle" the hive, with hatchet and chisel in hands, and went to work. I got along finely, and kept on until I transferred ten hives (different days). I liked it, for it is so much fun; if I'd get stung 25 or 30 times, it soon would be forgotten while working with the bees. I had several swarms this summer, and several left. Honey was not very good for yield, but nice eating, although I got a fair supply—enough to sell some, and kept plenty to eat, which is about 150 to 300 lbs. for my brother and me. We are both small boys—about 180 lbs. apiece is our weight, and we like honey. I tried to get my brother to eat too much honey, so he would get sick, and I could try the remedy for colic—that is, only plenty of sweet milk, and drink it; but he was not subject to any such ailings. I had some sections partly filled, so I took all out except one hive, and in front of that I put a box filled with these partly filled sections, for the bees to take up the honey from below and finish filling their partly filled ones; so I completed some sections, and the rest are empty, ready for next year. I noticed last spring with my bees that I could tell (by smelling) the difference between drone and worker comb. Is it a common thing? Can bees hear any sound that is loud, such as loud talking?

Aviston, Ill. **J. J. RANDALL.**

Friend R., your plan for getting the bees to complete partly filled sections, I should think, would be in great danger of inciting robbing. However, if you have got along all right, that is all that is wanted.—I have never before heard of anybody who could tell drone from worker comb by the smell. We should be glad to have others try it and report.—The matter in regard to bees hearing has been pretty fully discussed in our back volumes. The general decision seemed to be that they could not hear unless the sound were accompanied by some sort of a jar; but as more or less jar accompanies every sound that is made, I do not see how the question can be very definitely answered.

QUESTIONS FROM A BEGINNER IN REGARD TO WINTERING.

I do not like to bother you very much; but if you will answer two or three questions I shall be obliged. I have got my bees all in two-story chaff hives, with oat-chaff cushions on top, and three one-inch pieces under the cushion to hold it up. The cushion fits in pretty close, but the frost comes up around it. Do you think it will do any harm? They have got all of their frames of honey, nine and ten, the same as they had all summer. We have lots of snow here now. The wind blew so the other night that it filled the entrances full of snow, and it froze in there so full that no air can get out. Is it safe to leave it in there, or would you dig it out? I tried to dig out some of it, and the bees came out on the snow and died. I have a swarm of bees that are very sick now. They are crawling out and dying all the time. The queen is a daughter of the imported queen I got of you. As it is a good colony I do not like to lose it. If you can tell me any thing about it I shall be very glad. **FRANCIS C. SMITH.**

Kilmanaugh, Mich., Dec. 7, 1885.

I do not think the frost is any thing out of the way, friend S. The moisture from the breath of the bees ought to come up around the cushion; and where the weather is very severe, of course it will make frost around the openings. Don't bother with the snow at all. I can not remember where I have ever known snow to do harm. On the contrary, it is the bee-keeper's best friend; and yet we have more inquiries every winter in regard to snow around the entrances than almost any other one subject. Disturbing the bees by trying to clear the entrances results just about as you mention. I do not know what is the trouble with your sick bees, unless it is that they have bad honey. Putting lumps of candy right over the bees, so that they may subsist on candy stores instead of the honey in the combs, will sometimes stop the trouble until we have weather warm enough to permit them to fly out.

WASTE MICA FOR BEE-VEIL FRONTS.

I notice, in June GLEANINGS, your remarks about bee-veils having glass fronts. Now, there are several objections to glass, which are too obvious to mention. I sent for some samples of waste mica from the works here, where it is mined and cut for use in stoves. Would not this material be excellent for the bee-veils? It will not break, and can be perforated with a needle, and sown on to the netting. It is also cheaper than glass, as it can be got here for a dollar a pound, and a pound would have several hundred pieces in it. You will notice how easily it can be split to any thinness, and can be cut with scissors. If you would like some of it to test I shall be glad to send you some. H. STEWART.

Webster, N. C.

Thanks, friend S.; but mica has already been used for the purpose you mention. A few years ago it was advertised in GLEANINGS, and tested considerably; but although it does not break like glass, it has the same objection of being made obscure by dampness from the breath, and by getting soiled and dusty, so it must be wiped almost every time a veil is used. On these accounts it has been dropped. Thanks for the beautiful specimens you send.

AN APOLOGY TO MRS. COTTON.

I send you a letter, received from Mrs. Cotton, asking me if I authorized you to publish her as a humbug. Now, friend Root, I think that I owe Mrs. Cotton an apology. At the close of our correspondence in regard to that colony of bees, Mrs. C. made a proposition that she would send me another colony in the spring. I wrote her that I was perfectly satisfied, and I have now no reason to doubt that she will do just as she agreed to. Therefore I had no reason to write what I did, and I feel that I did Mrs. C. a great injury, and I am willing to acknowledge it. H. ADAMS.

Port Austin, Mich., Dec. 14, 1885.

We are glad indeed to hear so much in Mrs. Cotton's favor; and I agree with you, friend A., that it is a manly thing to do, to make acknowledgment when we fear we have been unwise.

HOW I RAISED SOME MOTH.

Now for the moth. I took two nice frames of comb, one containing 2 or 3 lbs. of honey capped over, and I put some sugar syrup into the other card. I have had these right in the house where I live for nearly two months. There was no sign of moth or worms in either card of comb when I brought them in, and the other day I took out the card that I had put the syrup in, and it was destroyed by the moth. Some of the worms were over one inch in length, while others were half grown, and still others not over one-fourth of an inch long. Now, how is this? I thought that a gray miller laid the eggs that produced these worms. Had these eggs all been laid while the comb was in the hive, why did they not all hatch at once, and the worms all be of one size? or do the worms produce eggs? which will you have it? There could possibly no miller get at these two cards, for I had them in a close-fitting box, with fine wire over the entrance.

Mineral Point, Mo., Dec. 16, 1885. O. F. BEAL.

Friend B., it is well established that moth is almost sure to hatch out from brood-combs when removed from the hives during warm weather. You will find the same thing mentioned in the A B C book. Without question, the combs contained eggs that remained in a dormant state until the warm temperature of the house caused them to hatch. I believe it is pretty well decided, however, that the worms do but little harm unless the combs contain pollen. With plenty of pollen for them to feed on, there is no trouble in getting moth worms an inch long, or even longer. I do not know how long the eggs will remain in the combs without hatching, but perhaps a year or more, if the temperature is not warm enough for them to hatch, nor cold enough to kill the eggs; for the eggs are not always killed unless they are subjected to a freezing as severe as 15 or 20 above zero.

FRIEND GOULD INTRODUCES HIMSELF TO OUR READERS IN POETIC MEASURE.

Good morning, Messrs. bee-men, and bee-women too,
For I'm bound to be a bee-man, what else I may do.
On the sea of bee-fame I've launched my canoe,
So here is my ☞ with a "how do you do?"
As an A B C scholar, about the first of June
I commenced handling bees, and getting used to their tune.
Twelve four-frame nuclei and two full stocks
Was the shape of my lesson, and size of my flock.
Seven divides and fifteen introductions I've successfully done,
Including four queenless colonies, with fertile worker one.
Made twenty-four hives of Simplicity style,
With inside fixin's, but haven't struck ile.
The gathering, in this section, has been so slim
That the bees havn't brought in the sweets with a vim,
So that, instead of BIG yields, which so many boast,
I've hardly enough to spread on my toast.
But where there is life, they say " there is hope,"
So, if my bees live, I will " give them more rope,"
As I've twelve Simplicities buried in a hill,
And thirteen on summer stands—they can't freeze if they will.
While two swarms took wing and got out of my range,
Counting one, which I sold, and you can see the increase,
Allowing two, which I doubled, to save me their fleece.
Of foundation, I've used thirty pounds or less,
Which has initiated me in most of the manipulations, I guess.
I've done all this work unaided and alone,
Without having once been stung—by a drone.
So, whether I'm well up in my class, or to be placed at the foot,
I leave the decision to—A. I. Root.

Corunna, Mich. J. T. GOULD.

A PLEA FOR THE MUCH-ABUSED MILKWEED.

I inclose a slip cut from the *Planter and Stockman*, of St. Louis. Either the editor must be mistaken, or the milkweed acts differently in different localities; for I can truly say, that if it had not been for milkweed the writer would have been in Blasted Hopes long ago, for three-fourths of our honey crop is from that same milkweed. Though I have diligently searched for bees that were so loaded down as to be unable to leave the blossom at all, I have not yet found any. I know that the bees go in at the entrance, and out of sight, with milkweed honey, but I do not know that they climb the combs; but I *do* know that the honey gets into the section boxes in very nice shape. I never yet saw any fighting when milkweed was in bloom, but I have seen quite a little pile of the balls that stick to their feet on the ground in front of the hive, sometimes as much as a small handful. I often see bees come out of the hive fastened together with it, and fly away after more stores, sometimes separating on the bottom-board, and sometimes after flying a few feet, and sometimes going out of sight together. Long live the milkweed!

GEO. L. HUBBARD.

Fairview, Dak., Dec. 26, 1885.

Friend H., I have long suspected that the damage done the bees by the milkweed was somewhat exaggerated, therefore I am very glad to have you give us positive facts in regard to the matter. From your statement I should infer that your bees were troubled about as much as bees ever are with these impediments on their feet.

REPORT FROM THE REVERSING DEVICES, ETC.

Thanks for the bellows spring. It came just in time for use; it works admirably. I will see that you lose nothing. I shall need some more reversers in the spring. I couldn't make the bees take the honey out and store it in the sections. I would break their cappings, but they would repair them and seal them up. But they are very handy to have, and I prefer them to the tins. If any one has been successful in getting the honey taken out and stored above, I should like to see a report, in GLEANINGS, of the manner and mode of operation generally.

ASTONISHING THE "OLD WISDOMS."

I had six colonies in the spring, all in good shape. One lost the queen early in April, and didn't do very much till I put on a new queen. I had no increase, and took out 359 full sections of white-clover and basswood honey, and have from 50 to 75 lbs. in partly filled sections. I took 94 full sections from one young swarm, and there is fully 15 lbs. left in partly filled sections. This large result astounds the "old wisdoms," who still put their trust in box hives and nail-kegs, and now they are "goin' to git" some of

"THESE 'ERE NEW FIXIN'S."

I prevented increase by following the directions of Prof. Cook, by hiving No. 2 where No. 1 went out. There was a great yield in basswood, but the buckwheat yield was almost nothing, though there was 100 acres within a radius of two miles. With us, buckwheat usually gives a large yield; but it was wet and cold this year, just when the buckwheat blossomed. I raise honey for my own amusement generally, and to give to my friends; but I like to make a success of it. A. POTTER.

Bennington, Vt., Sept. 30, 1885.

A POOR SEASON.

Our bees are laid up for their winter repose. We have no large reports to make, but still the ball is rolling. This has been one of the poorest years known for fifteen years. We have been using the Heddon cover, but do not like them, for the bees build ladders of wax to them; and when the covers are raised it pulls the frames with them, killing a number of bees. One desirable point is their cheapness. "Where there is a will there's a way," is an old saying, but a good one. We are not in Blasted Hopes, but our bees have gathered but little honey —about 300 lbs. in all, or not enough to supply our home market. We have been helping some of the brethren out of the fire by selling their honey. We also have to show for our work a fine lot of home-bred Italians. W. S. DORNAN.

Mechanicsville, Ia., Dec. 5, 1885.

EIGHT SWARMS LOST BY COWS KNOCKING THEM OVER.

As I am a beginner in bee culture, I do not know that my report will be of any advantage to the science of bee culture. This is my third year in the business. The winter of 1884 I carelessly lost eight colonies out of 16 by my cow getting to my hives one night when it was raining hard, and knocking the tops off to get the leaves they were filled with; so this past winter I concluded to remedy that trouble by covering with old carpet, setting my stand on the ground with only inch pieces under them. I then put boards to the sides and back, as high as the first story, and banked with dirt; and as we had an unusual amount of snow, my bees were covered with nearly 18 inches of snow and two heavy crusts, so I know they did not freeze. I had 19 stands to start with, but three of them I knew could not get through without being fed through the winter; but when winter once set in, the feeding played out, so they "went."

INTERFERING WITH THE LOWER STORY.

That hive I bought of you I filled with a swarm. They filled the lower story full, and then 28 1-lb. boxes on top. Had I taken the top crate off, and let the lower story alone, I am sure they would have gone through all right; but I took out the 16 pound boxes from below, when they could make no more honey; consequently they starved. So I have learned that it will not do to risk interfering with the lower stores in this country.

SMOTHERING BEES WITH ICE AND SLEET.

Last winter I had two stands I think smothered, as the whole hive was hermetically sealed under two crusts of ice, and at one time the sleet sealed the entrance for a few days before I discovered their condition; and when I opened them this spring the covers were as wet as water. They had 15 or 20 lbs. of honey apiece left. I have about 3 hives, where I ought to turn in, on the racks of comb, a pound of bees and a queen, but I know of no bee-man handy for me to get them.

Daleville, Ind. W. W. CORNELIUS.

Friend C., had your hives been made properly, I do not think your bees could have smothered, even under two crusts of ice, as you mention. What I mean by "properly made" is, with ventilators under the cover that can not be stopped with ice and snow, and a porous covering over the brood-nest.

A GOOD WORD FOR GEO. E. HILTON'S CHAFF HIVES.

I have noticed the cut of friend Hilton's hive and apiary, with a great deal of admiration. I have used this hive for the past three years by the side of others; and for a hive to produce comb or extracted honey, as a non-swarming and wintering hive, I feel it would be hard to excel. The large capacity for storing surplus in crates or super he uses, gives them so much room at the right time, and the advantage of replacing empty sections has a tendency to retard if not prevent swarming. The heavy walls and winter cushions with large air-space above make them an excellent wintering hive. I now have 57 of those hives in my apiary, painted in six colors, which renders them very attractive. In this part of the country, where losses by wintering are quite heavy, I can especially recommend them.

TROUT CULTURE.

I notice, also, you are interested in fish culture. Well, I raise speckled trout, the common brook trout. I now have specimens which will weigh 2½ pounds—little beauties. I am hatching 40,000 this winter. My ponds are not completed, which will be seven in number. The work, however, is being rapidly pushed by the contractor. They are costing $1200, and it remains a conundrum whether I ever get back my money. The trout is not as easily raised as the carp. They require cold water; they can not live in water above 70°. The price of trout is usually 50 cts. per lb. here, and often more. Perhaps I may write you again upon my success or failure. W. D. FRENCH.

Grand Rapids, Mich., Nov. 16, 1885.

Friend F., I am very glad indeed to know that speckled trout can be propagated in the way you mention. Has the matter ever been made a success? At half the price you mention, it seems to me it would be a wonderful achievement, and speckled trout would sell in our city markets at good prices in immense quantities, without doubt. By all means tell us how your experiment turns out. It seems to me you are starting in pretty heavily, if it is indeed an entirely new industry.

THAT NAMELESS BEE-DISEASE.

I had some questions to ask, concerning one swarm, but I see you have satisfied me in a late issue of GLEANINGS, except dates. Yours is August 28, mine is July 3. One queen, with 1 lb. of bees, bought July 3, has all the symptoms named in that piece, that unknown bee-disease, and it is fast dwindling away. I don't think there are bees enough left to make one pound. They have been thinning their ranks for six weeks. I have been watching them very closely, and never, in all my experience in 25 years, have I seen any thing like it. It produces such odd-looking, mangled bees. Some look like beetles and flies, small head and neck, and shoulders large; black and shiny abdomen.

Spencer, Ohio. **WM. DAGUE, SR.**

REPORTS ENCOURAGING.

FROM 29 TO 51, AND 3100 LBS. OF HONEY.

MY report for 1885. I went into winter quarters in the fall of 1884 with 47 colonies, and came through with 31—three-fourths of them very weak. I sold two, leaving 29 to commence the season with. I increased to 51 and got 3100 lbs. of surplus honey, extracted, except 150 lbs. comb honey. Nearly all is sold at 10 and 12½ cts. per pound for extracted and 15 to 20 cts. for comb. Bees have plenty of honey of a good quality for winter supplies. **L. G. PURVIS.**

Forest City, Mo.

FROM 15 TO 48, AND 2500 LBS. HONEY.

This is the way our bees panned out this year. Spring count, 15 colonies. Increased to 48, and took 2500 lbs. surplus honey—1800 comb, and 700 extracted, worth on an average 15 cents per lb. Increase of bees, 33 colonies, at $5.00 per colony, $165.00; 2500 lbs. honey at 15 cents, $375.00; total, $540.00, or $36.00 per colony. I attribute much of this success to sweet clover. **E. W. PITZER.**

Hillsdale, Iowa, Dec. 25, 1885.

FROM 84 TO 129, AND 9000 POUNDS OF HONEY.

I commenced the season with 84 colonies, all blacks but 6. I increased to 129, and took 9000 lbs. of honey. I have about 120 hybrids and Italians now. The black bees did no good this season. The spring honey crop was a failure, but we had a honey-flow in the summer and fall. I am very well satisfied with the season's work, but count it about half a crop. 3—**D. M. EDWARDS**, 84—129.

Uvalde, Tex., Dec. 2, 1885.

FROM 18 TO 51, AND 1000 LBS. OF HONEY.

Our bees were reduced to 18 swarms last spring, and nine were weak. We increased to 51 good colonies, with abundance of natural stores for winter, and have taken about 1000 lbs. of honey, mostly extracted, clover and basswood, and some fall honey. I like the Syrio-Italians, large red clover (pastured for seed it has smaller heads than the small red clover), and the Langstroth chaff hive. Our spring dwindling was mostly of those wintered in the cellar. **ILA MICHENER.**

Low Banks, Ont., Dec. 4, 1885.

5000 LBS. OF COMB HONEY FROM BASSWOOD.

With the aid of very fine weather I have secured about 5000 lbs. of basswood honey in sections—a very light crop, though it is one of the poorest seasons we have had for years. Our basswood began to bloom on June 14, and I saw this day on the highest ridges trees which had not bloomed, and they were full of young buds. **A. W. CHENEY.**

Kanawha Falls, W. Va., July 10, 1885.

FROM 83 TO 160, AND 3500 LBS. OF HONEY.

I started this season with 83 colonies of pure and hybrid Italians; increased by natural swarming to 160 colonies (did not accept any after-swarms). Amount of surplus, 2300 lbs. of white-clover honey in 1¼-lb. sections, and 1200 lbs. extracted. This was a poor season, too wet and cold. I have now 140 colonies all ready for cellar, but we are having very mild weather. Last year bees were taken into cellar Nov. 20, and wintered very well. **W. ADDENBROOKE.**

North Prairie, Wis., Dec. 4, 1885.

A GOOD REPORT FROM VERMONT.

I commenced bee-keeping in the fall of 1884, by buying two swarms of black bees in Langstroth hives. One died out in the winter. The other came out all right; swarmed once, and made 68 lbs. of surplus. The new swarm made 20 lbs. of surplus, besides enough to winter on. They had only one frame of comb, no fdn. I bought five swarms of Italians this fall at $6.00 a swarm. If they live this winter, I shall get foundation another spring. There are acres of raspberries about here.

Barre, Vt., Nov. 23, 1885. **H. W. SCOTT.**

FROM 10 TO 20, AND 400 LBS. OF HONEY.

Here is my report for 1885: I purchased this spring ten colonies in movable-frame hives, paying $45.00 for the ten. The hives were not the same size as the one I use, so I transferred most of them to the standard Langstroth hive. These bees were mostly hybrids, with one pure Italian and one black stock; every original stand cast one swarm, but I did not allow them to cast any more than one. The Italian stock was the first one to swarm; and from this swarm and the parent stock I got over 100 lbs. of comb honey. My total yield was 300 lbs. comb and 100 extracted, and increased from 10 to 20, good strong colonies. I introduced five of A. I. Root's dollar queens, of which I lost two in introducing. I took a case of comb honey and a few jars of extracted to our county fair, and was awarded first premium on comb and second on extracted. The premiums amounted to six dollars, which was quite a help to one just starting in the business. This has been a very poor honey season in this county. Bee-keepers who had a large number of stands did not get any surplus, so I am well satisfied with my gains, and am thankful. **HARRY LATHROP.**

Browntown, Wis.

128 LBS. OF BUCKWHEAT FROM ONE POUND.

I bought one pound of silverhull buckwheat of you last spring, and I thrashed 128 lbs. from that one pound. My bees went into winter quarters in good condition, and with plenty of stores.

Blairtown, Iowa. **O. P. NICHOLS.**

I should think the above was a very extraordinary yield, friend N. It is worth something, any way, to know the capabilities of silverhull buckwheat. We presume you gave it every advantage of soil and cultivation.

SHORT REPORT FROM FRIEND HART.

ROBBING IN FLORIDA.

MR. HARRY MITCHELL, who has been with me for the past four years, and had full control of my bees for the past two, has now left me, and gone to his own place, half a mile away. When he went away I sold him twenty-five colonies of bees to start an apiary of his own with, and it's my opinion that those twenty-five colonies will never disgrace the apiarian interests of this State while under Harry's charge. This sale leaves me with 125 colonies to start with next season, "if I carry them through the winter," a Northerner might say; but that is hardly necessary here, as I can work with them almost any day, and can commence to raise queens in February, if need be. I have just finished looking them all over, having been at work on them the past four days, Sunday excepted, and I find them in prime condition. There are five out of the lot that were sufficiently short of bees so that I thought best to take off the top sections, to economize heat. I also have two very small colonies in one-story hives, made a few weeks ago by uniting four small nuclei, two nuclei to the colony. These seven are in good shape, although small in numbers, and will no doubt be strong colonies early in March. The rest are in two and three story hives, and are as strong in bees as I have ever known them to be at this time of year. I believe that they will average from 30 to 40 pounds of honey each, and some three-story hives have at least 50 pounds each.

It has been my custom, at the close of the main honey-flow, early in August, to leave twenty pounds of honey in each hive, and I think Harry has done the same. If so, the bees have done quite well during the fall from small wild flowers. Mr. O. O. Poppleton, from Iowa, who is now stopping on his property here, and Mr. Storer, from Nebraska, were both with me for a while this afternoon, and both pronounced my bees to be in fine condition. They seemed surprised at my being able to open hive after hive, and handle the combs freely, many of them containing considerable new uncapped honey and pollen, and yet not start robbing. Many Northerners have an idea that bees in this State are always ready to start a robbing spree on the least encouragement, and some of the bee-men near here declare that this is the case; but I believe that their trouble comes from educating their bees to it. It is true, that robbers here, as anywhere else, have to be guarded against for a while after a honey-flow ceases; but my experience has never shown any greater tendency in my bees toward that direction here than I am led to believe exists elsewhere, although they have much more time during each year in which to develop the trait. I have never seen a case of robbing here among the bees that could not be quickly stopped by placing wet cloths at the hive-entrances, so that all bees going in or out had to pass over and under them. To hasten matters it is well to sprinkle those that are flying about, with water from a fountain pump. The wet hay used by some bee-keepers answers the same purpose.

While at work in the apiary to-day I have noticed quite a number of wasps, or yellow-jackets, as they are called, tearing the abdomen of the bees from the thorax so that they could get at the honey-sack and its contents. If I ever noticed any thing of the kind before, I have forgotten it. A small swarm came to me day before yesterday which I hived on six frames. The queen is now laying, and evidently intends to remain and raise a family. I am liable to come out at the beginning of next season with more than I had at the close of last season, as this is the second swarm to come this winter. My oranges are cracking quite badly on the trees this year; and the bees, knowing a good thing when they see it, are helping themselves to the juice.

9—W. S. Hart, 125.

Hawk's Park, Fla., Dec. 21, 1885.

Friend H., I quite agree with you that this whole matter of robbing depends upon the management. During the past season, although we have had between 300 and 400 colonies at one time, and many of them quite weak, comparatively, for they are used for queen-rearing, yet we had scarcely a case of robbing. The bees didn't get once started, and therefore it was but little work to keep them from it. Attending to little things at just the right time is the great secret of avoiding such disasters. I have sometimes, in utter discouragement, almost concluded there were certain people who could never learn to be successful with bees, just because no amount of exhortation or entreaty, and, in fact, no amount of disasters and heavy losses, could teach them by experience the importance of keeping every drop of honey, or any other kind of sweet, so carefully out of the way that not one bee ever got one load, and got home with it. The same rule applies to bees troubling candy-shops on the fair-grounds. Tell the proprietor to kill the first bee that commences to load up on his lemonade or pop-corn balls; and if he will do as you direct, a very little time will make him master of the situation.

HUMBUGS AND SWINDLES.

MORE ABOUT HULLESS OATS.

THERE are men going around here selling Bohemian oats at five dollars a bushel, and agree to give one dollar a bushel for all the farmers can raise from this seed. There is a "Bohemian Oats" association some place in Ohio; do you know where it is? I did not take any myself, but five of my neighbors are in for fifty dollars apiece.

Hiram Weaver.

Scircleville, Clinton Co., Ind., Nov. 7, 1885.

Friend W., the swindles of the Bohemian-oat men are now so thoroughly published in almost all our agricultural papers that it seems to me strange that a man can be found anywhere who is not well enough posted to turn a cold shoulder to them at once. A good many associations have been formed in our State; and although a few men may have got some money out of it, they have got a bad name that will last them to the end of their lives, unless they repent and restore the money to its rightful owners.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 1, 1886.

He that is greatest among you, let him be as the younger; and he that is chief, as he that doth serve.—LUKE 22: 26.

DISCOUNTS FOR THE MONTH OF JANUARY, 1886.

As business is still moderate, a discount of 4 per cent on all orders sent us during this month will be allowed.

The discount of 10 per cent on foundation will be continued so long as the price of wax remains where it is.

THE KANSAS BEE-KEEPER.

IN response to the editorial in our issue for Nov. 1, friend Scovill replies as follows in regard to the unexpired time on his subscription-list:

> I am now paying back amounts due, as fast as I can, and shall continue till all are paid. H. SCOVILL.
> Galena, Kan., Dec. 2, 1885.

AN OMISSION.

MY attention is called to the fact that I omitted to say that the beautiful volume of Paradise Lost was presented to me as a birthday present. Remember, I told you, in an editorial in our issue of Dec. 1, that I should be 46 years old on the second day of the convention.

FATHER LANGSTROTH'S BOOK UNDERGOING REVISION.

I AM pleased to make the above announcement, and also to be able to tell the bee-friends that the work is in the hands of such able men as Charles Dadant & Son. I can not say just how soon it will be out—may be some little time yet; but when it comes it will be fully abreast of the times.

NUMBER OF SUBSCRIBERS TO GLEANINGS ON THE LAST DAY OF 1885.

ALTHOUGH we have not as many as we had one year ago to-day, friends, I am happy to find that, by actual count, we have 4045 to start the year with. Considering the general depression in business, losses during the winter of a year ago, and the low prices in almost every thing, we think we have abundant reason to say, "Thank you."

FRIEND HEDDON ALSO AT WORK ON A BEE-BOOK.

WE are also pleased to note that friend Heddon is hard at work embodying the many good things he has given us in years past, in a book on bee culture. No matter how many bee-books you have already, I presume every one will want to add Heddon's book to his collection. We do not know when it will make its appearance, but we presume friend Heddon means to take time enough to do it well while he is about it.

BOUND VOLUMES OF GLEANINGS FOR 1885.

As we have quite a good many left over, we will furnish these, neatly bound in cloth, for an even $1.00, and pay postage besides. If you want a bound volume by express or freight, with other goods, the price will be 80 cents. If any one should want to know what we will charge to swap one of these bound volumes for your old ones unbound, the price will be 40 cts., you paying all postage both ways.

THE BRITISH BEE JOURNAL A WEEKLY.

WE have now three weekly bee-journals well established—the *A. B. J.*, the *B. B. J.*, and the *C. B. J.* The *B. B. J.* commences as a weekly during this present year, 1886. We have not completed arrangements yet with the publishers for our usual exchange; but until further notice we will furnish it with GLEANINGS for $3.50 per year. Since it is weekly, the postage amounts to something like 50 cts. a year.

CHARLES F. MUTH & SON.

WE are infomed by postal card that hereafter the above will be the name of the firm that does business in place of the usual C. F. Muth. And that is the way to do it. When we old folks get well along in life, let us allow some of these responsibilities to rest on the shoulders of the younger ones, while we attend conventions, make neighborly visits, and stir around enough to knock off the sharp corners. Best wishes to the new firm.

REPORT OF THE N. A. B. K. A. AT DETROIT.

As both the *American Bee Journal* and *Canadian Bee Journal* have given such very full and excellent reports of the proceedings of this convention, it hardly seems to me to be worth while for GLEANINGS to go over the same ground again. So many of our bee-keepers have the journals, it seems hardly advisable to have the same matter in all of them, especially while there is such a great amount of good original matter before us. If you do not take either of the above journals you can get, for only a few cents, copies containing these reports. I shall refer to the points considered there as they come up occasionally in our discussions, perhaps for a year to come. The report will occupy 62 columns of the *American Bee Journal.*

KIND WORDS FROM OUR CUSTOMERS.

The imported queen and bees came all right. I introduced her to a frame of brood last evening. They are all right this morning. I am well pleased with her. J. E. WINDLE.
Lafayette, Ind., Sept. 23.

BECOMING A CHRISTIAN CHANGES ONE'S VIEWS.

Having had some deal with you, I take the privilege to write you. I want to say a word in regard to mixing up subjects in GLEANINGS. I will say, I like to have it mixed with different subjects. Before I was a subscriber I would borrow GLEANINGS of a friend of mine, and I was one of those fault finding ones; and when I received your A B C book I found more fault than ever, because there was so much "religion" in it, as I called it. But about one year ago I gave my heart to God. Though it was dark at first, those clouds have all passed away, and GLEANINGS has been a great help to me. Those Home readings are good. I love to have the subject of religion mixed up with all of my doings, and put on the whole armor of God.

I have kept bees for seven years, and have not had very good luck until the last year, when they did well for increase, but not much honey. But I have learned to love God and all his creatures. My home is happier, which accounts for my bees doing better, and I am happier, all because we are trying to follow the path our Savior has laid out for us.

I have 17 swarms of bees. The most of them are in chaff hives, very strong, part Italians and part blacks. IRA D. GRANGER.
Madison, O., Nov. 16, 1885.

TELEPHONE.

The little telephone does the work. J. B. COOL.
Red River, Darke Co., O.

Poultry netting arrived on the 8th all O. K. Thanks for promptness. J. M. HYNE.
Stewartsville, Ind., Dec. 11, 1885.

OUR EXTRACTORS.

The honey-extractor I bought of you works to a charm. I am well pleased with it. It is well worth the money. I took 30 lbs. of honey in 6 days from one colony of Italians. C. D. FARNHAM.
Fleetville, Pa.

I am well pleased with the extractor you sent me last week. It does its work up to the handle, and the knife gives good satisfaction. It came to hand in good trim. W. F. MATZDORFF.
Goshen, Ind.

HOW IT PAYS TO ADVERTISE IN GLEANINGS.

By advertising in GLEANINGS my honey is all sold; and as I am still getting orders, please tell the public my honey is all sold. J. B. MURRAY.
Ada, O., Dec. 5, 1885.

Please find small advertisement inclosed. By advertising last fall you sold for me 329 colonies of bees, and I hope your printer's ink will do as well for me this winter and spring. ANTHONY OPP.
Helena, Ark., Oct. 29, 1885.

The A B C of Bee Culture came to me yesterday in good shape and condition. Many thanks for your very prompt attention and kindness. You shall hear from me again oftener in the future.
Dayton, O., Dec. 12, 1885. LEO P. DHEIN.

NEVER STOP GLEANINGS.

Inclosed find one dollar. Stop GLEANINGS? Never! Too many good things in it for one dollar, so send it along. WM. BATTLES.
Blairsville, Pa.

GROWLERY NO MORE.

Goods received in good shape. No wonder the Growlery has died out in GLEANINGS. Many thanks. The order was filled perfectly, though it was so badly mixed. A. L. LIGHT.
Pastoria, Ark.

The advance in apiculture knows no bounds. The ice chains, wrought by November storms, did not prevent the safe arrival of the tested queen sent by you Nov. 23d. Bees and queen were as lively as though there were no snow. J. F. MICHAEL.
German, O., Nov. 25, 1885.

The queen was received in good order, and is better marked than one I have seen which was *very* black. Thanks. I shall cross some of her drones next season on some of my Syrio-albino queens, and see the result. I think she is safely introduced.
New Philadelphia, O., Oct. 22. G. L. TINKER.

20-CENT SHEARS.

I sent to you last fall and got a pair of your 20-cent shears, and I must say that I was surprised, when I untied the package, to find such a nice pair for so small a sum of money. They are as good as we could find at any price, as far as I can see, and they cut nicely. I want 7 more pair just like them, to supply my neighbors. ADELBERT COOK.
Norwich, N. Y.

The three tested queens I bought of you in May did well; also the other queens — that is, the $1.25 queens. I bought three of you, but I did not get the queen-cage fastened rightly on the comb of one of them, and she got out too soon; and during the same night some time, the bees killed her; but I have two skeps from the other two queens that are the nicest-marked Italians I ever saw, and fine workers. They are now, I think, my last queens.
Loudonville, O. J. F. REED.

While I have been away from home nearly all summer, in the discharge of official duties, and have seen but little of GLEANINGS, I have lost none of my love for the business, and hope I may now have time in the coming months to read all you may have to say, for I have become interested in what you say *outside* of the question of bees and honey. Although you are peculiar, I can't help admiring your very frank, honest, and earnest ways. I intend sending for your book on carp culture. ED. R. ALLEN.
Kansas City, Mo., Oct. 19, 1885.

OUR CARLOAD OF CALIFORNIA HONEY; MELTING CLOVER HONEY, ETC.

My order for honey has brought it in good time, and with very reasonable freight charges. It was received in best condition on the 18th, and the California honey is simply magnificent. I wish my order for it had been much larger. The clover is candied, and stays white and slushy, even when put into hot water. Can it be perfectly thawed and cleared? F. M. POTTS.
Media, Pa., Dec. 24, 1885.

[Friend P., your clover honey has not been warmed enough, or you have not waited long enough. It will surely become perfectly clear and transparent, when melted, as you have probably found out by this time.]

KIND WORDS FROM THE AUTHOR OF "THE STORY OF THE BIBLE."

[After the very favorable notice I gave "Fables and Allegories" was submitted to the author I received from him the following kind letter, which he doubtless did not intend for publication; but I want to give it to you, as it illustrates so fully the point that there is no great excellence without great labor. Friend Foster tells us of the long, faithful, and earnest work required to get up such a book, and the world is just beginning to appreciate it.]

My Dear Sir:

Anybody who undertakes to get up a book full of *new* pictures, 350 of them, to have them drawn first, then engraved, then printed (not to speak of the money laid out), finds he has big job on hand, and it is a long one. Good things can't be done in a day. Your good artist wants time, so does your engraver, and so does your printer. But there is such a thing as fighting through it, and getting it all done, and done handsomely. Well, then to have it appreciated does come good. There is something about that, that pays a man (in a certain sense) better than the money profit. Now, my friend, I want to thank you for the appreciation you have shown of the pictures in the "Fables," by your advertisement. Numbers of pleasant things have been said, but I don't remember that a single customer has seemed to *feel* the beauty of the "get-up" of that book as you have. I am also delighted that you can conscientiously recommend so strongly the fables themselves. They have all come out of my own experience and my own heart, where the best things of all of us come from. My son generally writes the letters; but I told him I would reply to yours received this morning, and we both thought that your handsome notice deserved a gilt-edge copy, which we send by mail, with wishes for a happy Christmas. CHARLES FOSTER.
Philadelphia, Pa., Dec. 21, 1885.

OUR SUPPLIES "JUST SUPERB."

It is with a troubled conscience I inform you at this late date, of the safe arrival of goods ordered Oct. 27. The fact that I have been pretty busy at the office, left me little or no spare time to write; and when I got home in the evening I was so impatient to go to my work-room, and start nailing those nice hives, frames, etc., that I have entirely neglected to let you know how delighted and highly pleased I am with every thing you sent; and although there are ten two-story hives, and all the frames and accessories in the flat, to make them complete, every part fits so nicely, it is a real pleasure to put them together; and, by the way, those iron frames are just the thing for nailing hives; they keep the four sides together splendidly, and each hive must fit the other. I advise every one who has only a few hives to nail to get them; they will pay for themselves, in having a good fit, and saving time.

The sections are very pretty indeed—beautiful, to say the least. They bend up and are driven together so nicely and easily, while the Gray fdn. fastener caps the climax, by fastening the starters in those snow white sections very quickly, and without soiling them in the least, for you hardly need touch them, and that by one simple motion of the foot on the treadle. I was surprised, how you can sell a machine, so perfect in its working, and so neatly and strongly made, for the remarkably small sum of 75 cents.

The extractor is just superb, and I think it can't be beat. The revolving basket is so nicely balanced that, when it is turned, the outside can is not jarred or moved in the least, although not fastened to the floor; and when I put in a couple of combs of honey previously uncapped with the Quinby honey-knife, it threw the honey out so clean that no one would believe they ever contained honey, and not a cell injured. You can imagine how delighted I was, never having seen, much less run, an extractor before, to have succeeded so well for the first time.

And now allow me to beg pardon for being so selfish, as it were, not to share my pleasures, and thank you ere this, for you were really instrumental in bringing them about, by filling my order so satisfactorily and promptly; for to receive my goods, as I did in 12 days from date of order, and 8 days from time of shipment, considering distance, by freight, is quick time, and you deserve the patronage of all who like fair and honest dealing.

CHAS. M. THEBERATH.

Newark, N. J., Dec. 10, 1885.

CONVENTION NOTICES.

The Northern Ohio Bee-Keepers' Association will hold a meeting in the Baptist Hall, in Wellington, Ohio, Friday, January 8, 1886. A special effort will be made to secure a full attendance.

East Townsend, O. H. R. BOARDMAN, Sec.

The North-Eastern Ohio and North-Western Pennsylvania Bee-Keepers' Association will hold its seventh annual convention in Meadville, Pa., Wednesday and Thursday, Jan. 20 and 21, 1886.

New Lyme, O. C. H. COON, Sec.

The next meeting of the Maine Bee-keepers' Association will be held at Skowhegan, Maine, Jan. 19, 20, 21, 1886. WM. HOYT, Sec'y.

Ripley, Me.

The Indiana Bee-Keepers' Association will meet in Indianapolis, Jan. 21, at 1 P. M., in the State Board of Agricultural Rooms, opposite the new Statehouse. We should be pleased to have all meet with us, and hereby send an earnest invitation to come. JONAS SCHOLL, Pres.

Lyons Station, Fayette Co., Ind.

The Sixth Annual Meeting of the Cortland Union Bee-Keepers' Association will be held Jan. 12, 1886, at Cortland, N. Y., in Union Hall, at ten o'clock A. M. It is hoped that all interested in apiculture will make an extra effort to be in attendance at this meeting, also to be present promptly at the time appointed, so that there need be no time lost. Those unable to attend the meeting are requested to send a report of their apiary from May 1, 1885, to Dec. 1, 1885, to the Secretary.

M. H. FARBANKS, Pres.

W. H. BEACH, Sec'y, Cortland, N. Y.

FARM AND APIARY FOR SALE.

160 Acres, 120 in a good state of cultivation, and well fenced; the rest in timber. Good bearing orchard, well watered, and splendid outside range, 4 miles from railroad and County Seat, and a good live town, and plenty of churches, and ¾ mile from school. Will be sold cheap, and on long time. Splendid bee range; lots of basswood and white clover; 24 stands of bees, mostly Italians, in Langstroth hives. For further particulars, address old JAMES HUMPHRYS, BOX 200, MT. AYR, RINGGOLD CO., IOWA.

HAVING MOVED TO NEWARK, N. J.,

My friends will please take notice, while reading my advertisement, of the change of address.

F. Holtke, 89 Waverly Place, Newark, N. J.
In care of Mrs. Kitterer.

FOR SALE.

One second-hand fdn. mill that will roll sheets 14 inches wide. The mill is at present in New Hamburg, Ont., Can. The original price on it was $40.00, but we will now sell it at half price, or $20.00.

A. I. ROOT, Medina, O.

HONEY AND BEESWAX.

We are now in the market, and will be during the entire season, for all honey offered us, in any quantity, shape, or condition, just so it is pure. We will sell on commission, charging 5 per cent; or if a sample is sent us, we will make the best cash offer the general market will afford. We will handle beeswax the same way, and can furnish bee-men in quantities, crude or refined, at lowest market prices. Our junior member in this deparment, Mr. Jerome Twichell, has full charge, which insures prompt and careful attention in all its details.

Sample of comb honey must be a full case, representing a fair average of the lot. On such sample we will make prompt returns, whether we buy or not. **CLEMONS, CLOON & CO.,**
15-2db **Kansas City, Mo.**

BEE-HIVES, ∵ SECTIONS,

HONEY - BOXES, ETC.

GREAT REDUCTION.

All Dealers and large consumers will find it to their interest to write us for special stocking-up prices, either for present or future delivery. 16tfdb

G. B. LEWIS & CO., WATERTOWN, WIS.

BLACK JAVA COCKERELS.

A few fine birds for sale at $3.00 each. Warranted to be as good as the best. 23,24,1,2d.

S. M. DARRAH, Chenoa, Ills.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

JOB LOT OF WIRE CLOTH

AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1½ CTS. PER SQUARE FT.

SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED.

This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and cages for shipping bees; making sieves for sifting seeds, etc.

Inches Wide.	No. of Rolls.	Number of Square Feet contained in each Roll Respectively.
10	3	3 rolls of 75, 72 s. f.
12	2	2 rolls, 100 s. f. each.
20	3	3 rolls of 166 s. f. each
22	4	2 rolls of 181, 1 of 169 s. f.
24	6	4 rolls of 200, and 1 of 180 s. f.
26	71	22 rolls of 217, 38 of 216, 2 of 195, 1 of 156, 2 of 215, 1 of 210 s. f.
28	16	13 rolls of 233, and 2 of 234, s. f.
34	7	5 rolls of 281 s. f.
36		
38	37	28 rolls of 316, 3 of 285, 2 of 317, 1 each of 190, 632, 126, and 215 s. f.
42	1	1 roll of 245 s. f.
44	2	1 roll of 366, 1 of 348 s. f.
46	1	1 roll of 152 s. f.
48	12	9 rolls of 400, 1 of 100 s. f.

FIRST QUALITY WIRE CLOTH AT 1¾ CTS. PER SQUARE FT.

The following is first quality, and is worth 1¾ cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1¾ cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

Inches Wide.	
20	1 roll of 155 s. f.
22	1 roll each of 88, 143, 92 s. f.
24	43 rolls of 200 sq. ft. each; 1 each of 80, 96, 120, 168, 190, 100 150 140 sq. ft.
26	58 rolls of 216 sq. ft. each; 1 each of 195, 195, 201, 200, 201, 227, 204 sq. ft.
28	76 rolls of 233, 6 of 224. 3 of 219, 8 of 222, 7 of 224, 2 of 219, 1 of 117 sq. ft.; 1 each of 70, 210, 245, 257, 240, 215, 110 93, 82 sq. ft.
30	36 rolls of 250 sq. ft.; 1 each of 82, 137, 225, 117, 125, 125, 220, 227, 237, 235, 275, 240, 157 sq. ft.
32	13 of 266, 7 of 256, 2 of 253 square ft.; 1 each of 233, 251, sq. ft.
34	31 rolls of 283 sq. ft. each; 1 each of 50, 113, 198 sq. ft.
36	22 rolls of 300 sq. ft. each; 2 of 72, 1 each of 288, 150, 279, 285 sq. ft.
38	1 roll each of 300 and 316 sq. ft.
40	1 roll of 233 square feet.
42	1 roll of 350 square feet.
46	1 roll of 192 square feet.

A. I. ROOT, Medina, Ohio.

HEADQUARTERS IN THE SOUTH

FOR THE MANUFACTURE AND SALE OF

BEE-KEEPERS' SUPPLIES

The Only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, Etc.

The Viallon and Root Simplicity hives, and the 4¼x4¼ Sections a specialty; Comb fdn., Extractors, Honey-knives, Bee-veils, etc.

ITALIAN QUEENS.

Untested, in April, $1.25 each; $13.00 per doz. From May 5 to June 1, $1.10 each, $12.00 per doz. After June 1, $1.00 each, $10.00 per doz. Tested, $2.50 each; select tested, $3.00 each. After June 1, 50c less. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

With pure Italian queen, in April, $4.00. Three-frame nucleus, with pure Italian queen, in April, $3.50. Two-frame do., do., in April, $3.00. After May 15, 25 cents lesss.

BEES—BY THE—POUND,

In lots of five or more, at $1.00 per lb., no queens. If queens are wanted, add price of queens. Safe arrival and satisfaction guaranteed in every instance. For more particulars, send for my descriptive illustrated catalogue for 1886.

P. L. VIALLON,

1-3d **Bayou Goula, Iberville Parish, La.**

IMPORTED QUEENS.

In April, - - - - - -	11 francs in gold.
May and June, - - - - -	10 " " "
July and August, - - - -	9 " " "
September and October, - -	7 " " "

No order received for less than 8 queens. Queens which die in transit will be replaced only if sent back in a letter. CHARLES BIANCONCINI & CO.,
1-11d Bologna, Italy.

FOR SALE.

100 lbs. *Beeswax, choice yellow*, per lb., 30 cents; 100 lbs. dark, at 26 cts. per lb., warranted pure and good wax.

80 lbs. 1¼-inch *Wire Nails* (barbed) 13 gauge; in lots of 10 lbs. and over, per lb., 7c.

Stencil and Key Check Die Outfit. Price and full list on application.

Four Horse-Power Engine and Boiler (B. W. Payne & Sons' make), not used over three months. Warranted in good order. Also *18-inch French Burr Corn and Feed Mill.*

One Barrel-Steamer for cooking feed. Furnace, 1¼-inch boiler iron, "T" pipe, brass cocks. In good order. Prices, etc., on application.

H. L. GRAHAM,
1-2d GRANDVIEW, LOUISA CO., IOWA.

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY.

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

NOTICE!

The partnership heretofore existing between F. A. & H. O. Salisbury has been dissolved by mutual consent. The business will be carried on by F. A. Salisbury at 318 W. Genesee St., Geddes, N. Y.
1d **F. A. SALISBURY.**

SUMNER & PRIME,

BRISTOL, * VERMONT.

—MANUFACTURERS OF—

Bee-Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and samples free. 1-2d

---

75 COLONIES OF BEES FOR SALE.
Address **J. S. Baxter,**
1tfdb **Corinth, Alcorn Co., Miss.**

WANTED.—6000 ONE-PIECE SECTIONS. Send lowest cash price. L. D. WORTH,
1d Reading Center, N. Y.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error.

WANTED.—To exchange circular-saw machine for hive-making, machine for making dovetailed sections, light saw-mandrels, or bee-supplies, for extracted honey. Clover and basswood preferred. 1d D. S. HALL, South Cabot, Vt.

WANTED.—To exchange one-half bushel of extra fine white-clover seed for alsike-clover seed. 19tfdb M. A. GILL, Viola, Richl'd Co., Wis.

WANTED.—To exchange or sell. Friends, I have 15 pairs of the celebrated Bonney's stock of Brown Leghorns that I will sell at $3.00 per pair, or will exchange for good beeswax at 25 cts. per pound. Circulars free. Ref., A. I. Root.
24tfdb A. H. DUFF, Creighton, Guern. Co., O.

WANTED.—To exchange, Scott's Commentary on the Holy Bible, 6 vols., quarto, bound in sheep, in good order, weight 19 pounds. As I have other commentaries, I will exchange this for something else useful. Address A. H. VAN DOREN,
24tfdb Liberty, Bedford Co., Virginia.

WANTED.—To exchange golden-willow cuttings for Italian queens. I will book orders now, and send the willows as early as will do next spring; queens wanted in May and June, 1886. 2 dozen cuttings for a warranted, and 4 dozen for a tested; also one weeping-willow cut with each dozen. Will send by mail. S. C. FREDERICK,
24, 5db Coal Vale, Craw. Co., Kan.

WANTED.—To exchange pure-bred German Canary birds; also Brown and White Leghorn eggs in season, for beeswax, sections, or Italian bees. F. H. CHAPIN, Hinsdale, Catt. Co., N. Y.
1-2d *Dealer in all kinds of country produce.*

IF you wish to exchange strawberry, blackberry, or raspberry plants for Italian bees, send list of varieties and prices to E. A. GASTMAN,
1tfdb Decatur, Macon Co., Ill.

WANTED.—To exchange, a Barnes foot-power circular saw, with three saws and two mandrels; also one circular-saw mandrel, for either honey or poultry. Make offers.
1dtfb OTTO LESTINA, Derby, New Haven Co., Ct.

Untested Queens from the South.

I have several young queens, which I will send by return mail to any one wishing them, for one dollar. MRS. A. A. NEEDHAM,
Sorrento, Orange Co., Florida.

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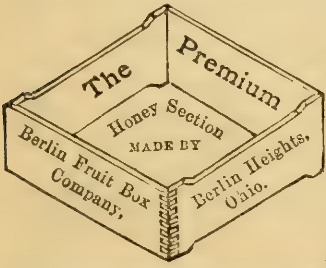
MINUTES OF THE DETROIT CONVENTION.

The proceedings of the N. A. B. C. at Detroit is being published in pamphlet form, and a copy will be sent to each member of the society who was in attendance. All others who so desire will receive a copy on payment of 25 cts. to the society.

FRANK L. DOUGHERTY, Sec.
Indianapolis, Ind.



Awarded

First Premium twice, and the only instances they ever competed, in 1884 at Michigan State Fair, and in 1885 at the Inter-State Fair, held at St. Joseph, Mo. The excellence of these sections is acknowledged by many leading bee-keepers amongst whom are the following, who handle and use them:

Chas. Dadant & Son, Hamilton, Ill.; F. L. Dougherty, Indianapolis, Ind.; M. H. Hunt, Bell Branch, Mich.; Hemphill & Goodman, Elsberry, Mo.; G. W. Demaree, Christiansburg, Ky.; Theo. Thomas, Pleasant Valley, N. Y.; H. R. Boardman, East Townsend, Ohio.

The last-named gentleman writes us, "The lot of sections I got of you (10,000) were very nice and perfect. I am not satisfied in saying I was pleased with them—I was delighted. They were bright and perfect as new-made coin. I have no hesitancy in saying that your make of sections is superior to any I ever saw. There is practically no breakage in folding. In trying them I folded 1000 without breaking a piece."

Our improved facilities for manufacturing these sections enable us to offer them at greatly reduced rates. Send for price list. Address as above. We also make the best berry-baskets in the market.
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(Best quality, and clean), per bush., $7.80; for less than 1 bush., add 20 cts. for bag. Carefully bred Ital. Queens, if ordered now, 75 cts. each. B. Leghorn eggs (from premium birds), per 13, 50c. Raspberry and strawberry plants, very low. Inclose stamp for reply. C. M. GOODSPEED,
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Dealers and large consumers should write us for

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Smith & Smith, Kenton, O.

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DEALERS AND LARGE CONSUMERS WILL FIND IT TO THEIR INTEREST TO WRITE FOR PRICES FOR 1886.

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Our beautiful all-in-one-piece sections, smooth inside and out, at $4.00 per 1000. For larger lots, write for prices. Send for price list of other supplies. M. H. HUNT,
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Jan. 11, 1886. 57 Chatham St., Boston, Mass.

KANSAS CITY. — *Honey.* — Sales extremely light, and prices very low. Choice comb, 1-lb. sections, 14@15c; 2-lb., 12@13c. Dark fall honey, 1@2c. less. Extracted, very dull, and slow sale. We had to unload some first-class extracted honey this week at 5c, and stocks continue to accumulate.
Beeswax, scarcer and higher, 22@25c.
Jan. 7, 1886. CLEMONS, CLOON & CO.,
Cor. Fourth & Walnut St's, Kansas City, Mo.

CHICAGO.—*Honey.*—The market has changed but little since last quotation, there being a moderate demand for all grades and styles. Perhaps extracted is in better demand than comb, but both are needed here, as the supply is light. There has always been a good demand for honey about the beginning of February, and the stock should be here to meet it. R. A. BURNETT,
Jan. 11, 1886. 161 S. Water St., Chicago, Ill.

CLEVELAND.—*Honey.*—Since the holidays, the demand for honey has been very limited in all lines; values remain unchanged. Choice white 1-lb. sections, 14@15; 2-lb., 12@13. Second grade very hard to sell at 10@12. Old honey, 10@11. Extracted, 7@8. *Beeswax*, very scarce at 25. A. C. KENDEL.
Jan. 9, 1886. 115 Ontario St., Cleveland, Ohio.

MILWAUKEE. — *Honey.* — The demand for choice white-clover honey is very fair, and supply not large. I can encourage shipments. Extracted in very good demand. I will quote, 1-lb. sections, white, 15@16; 1½ and 2-lb. sections, white, 15; dark honey, 12½@14. Extracted in kegs and bbls., white, 7½@8; extracted, in kegs and bbls., colored, 6@6½.
Jan. 5, 1886. A. V. BISHOP,
142 W. Water St., Milwaukee, Wis.

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We are now in the market, and will be during the entire season, for all honey offered us, in any quantity, shape, or condition, just so it is pure. We will sell on commission, charging 5 per cent; or if a sample is sent us, we will make the best cash offer the general market will afford. We will handle beeswax the same way, and can furnish bee-men in quantities, crude or refined, at lowest market prices. Our junior member in this deparment, Mr. Jerome Twichell, has full charge, which insures prompt and careful attention in all its details.

Sample of comb honey must be a full case, representing a fair average of the lot. On such sample we will make prompt returns, whether we buy or not. **CLEMONS, CLOON & CO.,**
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To introduce my strain of pure bright Italians, equal to any in the United States, I will offer tested queens, $1.00 each; extra fine, selected, $1.50 each; one-frame nucleus, consisting of one extra select queen, one frame of brood, ½ lb. bees, for $2.00. If you want any bees, send me your address on postal and I will send you sample by return mail. Beeswax or honey taken in exchange.
22tfdb **THOMAS HORN,**
Box 691, Sherburne, Chen. Co., N. Y.

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WANTED.—To exchange one-half bushel of extra fine white-clover seed for alsike-clover seed. 19tfdb M. A. GILL, Viola, Richl'd Co., Wis.

WANTED.—To exchange or sell. Friends, I have 15 pairs of the celebrated Bonney's stock of Brown Leghorns that I will sell at $3.00 per pair, or will exchange for good beeswax at 25 cts. per pound. Circulars free. Ref., A. I. Root.
24tfdb A. H. DUFF, Creighton, Guern. Co., O.

WANTED.—To exchange, Scott's Commentary on the Holy Bible, 6 vols., quarto, bound in sheep, in good order, weight 19 pounds. As I have other commentaries, I will exchange this for something else useful. Address A. H. VAN DOREN,
24tfdb Liberty, Bedford Co., Virginia.

WANTED.—To exchange golden-willow cuttings for Italian queens. I will book orders now, and send the willows as early as will do next spring; queens wanted in May and June, 1886. 2 dozen cuttings for a warranted, and 4 dozen for a tested; also one weeping-willow cut with each dozen. Will send by mail. S. C. FREDERICK,
24, 5db Coal Vale, Craw. Co., Kan.

WANTED.—To exchange pure-bred German Canary birds; also Brown and White Leghorn eggs in season, for beeswax, sections, or Italian bees. F. H. CHAPIN, Hinsdale, Catt. Co., N. Y.
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WANTED. — To exchange Italian bees and queens for a second-hand engine, Shipman or Payne & Sons. L. HEINE,
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2tfdb Mulberry, York Co., Pa.

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COMB FOUNDATION MILLS.
Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XIV. **JAN. 15, 1886.** **No. 2.**

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MORE ABOUT THE BEE'S EYES.

A TALK TO THE JUVENILES ON HOW TO COMPREHEND MERE NUMBERS.

As Prof. Cook has opened the way, I now venture forth with a few more notes upon the bee's eye—such facts as I have been enabled to glean from the field of the microscope. This is not intended to supplement Prof. Cook's able article on the above subject, but is simply the result of independent research. I therefore will take up the eye of a bee, presenting it in a slightly different phase.

Let me see—I was going to write to the little folks, so I am. First, I desire you to read Prof. Cook's article over carefully, for you surely will find it interesting; then if you choose you can see what I have to say.

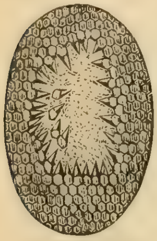
The compound eyes that Prof. Cook told you about are called "compound" because there are a great number of eyes in one. If I should tell you that in one of these compound eyes there are over 3000 little eyes you would hardly know how many this meant. When I tell you that the sun is over ninety millions of miles away, you could then form but a small idea of its immense distance. Figures have but little meaning to us, unless we can have something for comparison. Astronomers — men who study the stars—have a way of comprehending distances, and I will try to explain it so you can understand it.

You are accustomed to regard this earth as very large. You can travel a whole week over its surface, and then you will have gone over but a small portion of its circumference. Now, did you ever think that light travels? If you are old enough, and have been at school long enough, you will find that it travels exceedingly fast. Why! it can go around this great earth more than seven times a second; and yet, with this enormous speed, wise men tell us that it takes eight full minutes for the light to travel from the sun to our earth. In other words, it takes eight minutes for the light to travel 90,000,000 of miles—the distance from the sun to us. Now, can you understand what a lot of ciphers mean? If you do not, get your mother to help you. A moment ago I told you that a bee had, in one of his compound eyes, over 3000 simple eyes, or 6000 in both his large eyes. These figures I obtained with the aid of my microscope by counting a certain number, then estimating. By referring to Carpenter—an authority on the microscope—I find that a fly has in two of his compound eyes 4000 simple eyes; the cabbage-butterfly, 17,000; dragon-fly, 24,000.

These numbers are by no means as large as those standing for the distance to the sun; yet three or four thousand, I fancy, will have little meaning to our little folks. Let me see—a *very* large hall or church will hold perhaps three thousand people. Now, suppose you crowd every one of these people into an area of little over an eighth of an inch square, how small do you suppose each person would become? He would be about the size of one of these simple eyes in the compound eye of a bee.

Little friends, I have given you these comparison in order that you may better understand what mere numbers signify, and also that you may better comprehend how very small are the simple eyes of the bee.

Let us next glance for a moment at the general appearance of the bee's eye, a cut of which appears below, showing the form of each simple eye, or "ocellus;" their combined surface resembles, somewhat, sealed comb honey (or brood). In the drawing, the simple eyes are exaggerated; for if given in their exact proportion they would be hardly visible. Through the microscope, however, these simple eyes appear like a lot of little beads nicely imbedded over the surface of the large eye, and I do not know of any part of the bee that is more beautiful under the microscope than this.



EYE OF A BEE.

You notice in the engraving, that part of the eye looks as if the central portion had been torn out. This is to show the shape of each little eye when dissected. You observe that the outer surface of each is hexagonal (having six sides like honey-cells), and tapers down to a point. To this is attached the optic nerve, communicating with the brain. Perhaps you would liken the whole to a sunflower head filled with ripened seed, the whole head answering for the compound eye, and the separate seeds the simple eye.

When we reflect that each one of the simple eyes is so small and yet so perfect, having nearly all the parts belonging to our eyes, are we not again led to say, "How wonderful are thy works, O Lord!"? Yes, he has made great worlds, millions of miles away, and yet even the little insects have not been neglected, so perfect are they. ERNEST R. ROOT.

UPPER ABSORBENTS.

CAN BEES WINTER IN OPEN-MOUTHED BOTTLES?

THERE is no business or occupation in existence, that I am aware of, in which there are so many prominent, vital questions unsettled, as in bee-keeping. There are numerous points, important to all and doubly so to the beginner, on which we will find leading and successful apiarists holding diametrically opposite views. We see this at every bee-keepers' convention and in nearly every bee-journal we read.

To the experienced bee-keeper this want of unity in thought with the argument which it brings, is not only of no injury, but often of decided benefit, by leading him to question more closely his reasons for his own line of action, and thereby detect any possible flaws therein. To beginners, though, whose ideas are not yet matured by experience, this variety of opinion is, to say the least, somewhat bewildering. Still there is no help for it. By discussion we shall the sooner arrive at truth; and it is but justice to the beginner to present both sides of the question, in order that he may decide for himself on those points where "doctors disagree." Very often what is right for one locality or system of management is all wrong for another, and so both sides may be right, and no doubt frequently are. We are apt to get so deep into our own groove that we do not see our neighbor in *his* groove, although it may run almost alongside of our own, and coming out at just the same place.

I am led to write this by the article which appeared on page 824 of Dec. GLEANINGS. The writer takes alarm at the statement by Mr. Heddon, that he is "becoming of the opinion that our upper absorbents are usually useless and ofttimes worse," and expects the editor, as a matter of course, to join him in attacking the heresy. I have read Mr. Heddon's reply with interest; but as he is probably busy with his new book and reversible hive, he does not go into the subject with his usual thoroughness.

Several years ago, in giving in GLEANINGS the results of some extensive wintering experiments, I said that, while it seemed to make little difference during the winter whether an enameled cloth or a porous covering were used over the bees, a porous covering was a decided detriment during the spring months. Further experiments since then have convinced me that, if other conditions are observed, there is never any real advantage to be derived from upper absorbents, while with a small swarm or a large hive, or at any time when brood is being raised before warm weather comes, there is a great disadvantage from their use. I find, too, that many of those most successful in wintering have come to the same conclusion. Moreover, I have no doubt that the reason why bees in box hives, without care, often winter better than those that have the advantage of all the modern improvements is that the latter are frequently ventilated to death, while the former are more often allowed to hermetically seal the top of the hive, and absorbents are never thought of.

I consider that the essential points in outdoor wintering are, 1. Plenty of good honey, or its equivalent, with but little pollen; 2. Strong colonies; 3. A contracted hive, a covering impervious to moisture, and a large entrance; 4. A protection from the cold (on top, and, if possible, on all sides) of chaff or other non-conducting material, the thicker the better.

To carry out this system, as soon as spring comes the bees should be crowded on still fewer combs, and the entrance made quite small, until the size of the colony and the heat of the season make enlargement necessary.

WHY ABSORBENTS ARE INJURIOUS.

Bees at all times exhale a certain amount of watery vapor. In cold weather this must pass out of the hive, or be condensed on its combs or walls as water or frost. To prevent this condensation many place porous materials inside the hive, which are supposed to keep the hive dry by absorbing the moisture. Very often they do this very well for a time; but if no provision is made for drying them they become damper and damper as the winter continues, until finally they can hold no more moisture. Any thing wet is, under such circumstances, necessarily cold, and this damp cushion often proves a veritable "wet blanket" on the prosperity of the unfortunate colony, extending its malign influence long after cold weather is past, compelling the bees to dry this soaked and often frozen cushion by the heat of their bodies before they can be comfortable.

Instead of absorbents some employ upper ventilation, carrying the moisture out of the hive along with an upward current of air through the top. There are but few who advocate that this current should be unrestrained, as when an opening in the top of the hive communicates directly with the outer air, because the folly of this course is usually easily seen after a hard winter or with weak colonies. The heat of the colony is carried off so rapidly that either all die during some cold snap, or they dwindle away by degrees and die in the spring, or come through with but a fraction of a working force.

Others prefer a medium course; viz., upward ventilation through a thick layer of chaff or other porous material. Here the chaff is not really an absorbent, but only serves to restrain the upward current of air. If any moisture is absorbed it is soon dried out by the rising air. This is much better than unrestrained upward ventilation, or absorbents without upward ventilation, but it is also very wasteful of the heat of the colony. Any thing like an upward current is injurious, causing the bees to become uneasy, and consume a greater quantity of food, rendering them more liable to starvation and diarrhœa.

It is scarcely necessary to remind any of the readers of GLEANINGS that warm air is lighter than cold, and therefore has a tendency to rise; that the top of an apartment containing any source of heat is warmer than the bottom, or that, if a hole be made in top of such an apartment, a draft will be created which will lower the temperature of the room by removing the warm air; neither is it necessary to remind you that moist air is heavier than dry air, especially when cool.

In the face of these facts I can hardly see why bee-keepers follow the unscientific and unnatural plan of using absorbents or upward ventilation to remove the moist air which would run out of the hive itself if permitted, carrying very little heat with it. "All-out-of-doors" is the best, cheapest, and most extensive absorbent of moisture we can find. To gain this end, the entrance should be large—I would have it not less than 12×⅜, the wintering apartment small, so that the bees can warm all parts of it, and its walls protected by some non-conducting material, the thicker the better, in order that they may be kept warm so that moisture will not condense on them. These walls, sides, and top, should be of some material impervious to air or moisture; then the watery vapor generated by the bees, being heavier than the air, will sink to the bottom and flow out at the entrance, while the warm air will remain confined at the top of the hive.

The prime cause of our wintering troubles is cold. Retention of moisture in the hive, or ventilating it out at the top, must lower the average temperature, which is something we should carefully guard against. 8—J. A. GREEN, 85—100.

Dayton, Ill., Jan. 6, 1886.

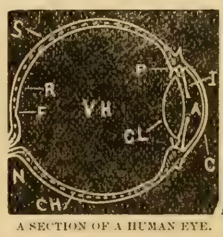
Friend Green, your reasoning is good, and the most of it I am prepared to follow. But it seems to me you are going a little to the extreme when you recommend a small wintering apartment, impervious to air or moisture. Of course, you recommend that this small apartment should be well protected by some non-conducting material, and that the entrance be large. I agree with the latter, and may be with the whole of it; but to be sure we understand you exactly, suppose you put your bees into a bottle having a large mouth, the bottle to be just the size to contain the colony, and to be protected abundantly by warm packing over all the bottle except the mouth. Would this be just the thing? I am rather inclined to think it would, if the mouth of the bottle were of just the right size; and 12 inches by ⅜, or an equivalent, would probably be about right for an average colony. You will see, by looking at the A B C book, that I come pretty near on to your ground, though I confess I should have feared to recomend a glass bottle. I say *glass*, because glass is a better non-conductor of heat than metals, or, I might have said, a water-tight tin box. Now, if your position is the right one (that we can confine every bit of the animal heat, provided we keep the frost entirely away from the impervious covering), I do not know but we are going to make a big step in this matter of wintering. I notice the poultry journals are recommending just this thing exactly. Let the fowls roost in an air-tight apartment, except an opening below, where they hop up on to their roosts. This, of course, is for zero weather.

VISION IN INSECTS.

AN INTERESTING TALK ON EYES IN GENERAL.

I SUPPOSE many of the readers of GLEANINGS know that the eye is a very complex organ. The window of the eye—the cornea, marked C in the drawing—is transparent as clearest glass. This bends the rays of light that pass it, as does water. We all know that this is why the stick in a glass of water appears to bend. The rays of light do bend, and so the stick appears to bend. The aqueous, or watery humor, A, back of the cornea, is simply a filling; it varies the ray of light leaving the cornea, almost none at all. The iris, I, is what gives color to the eye. It is the window-curtain, which the eye dexterously raises or lowers as it wishes more or less light. This is to the eye what the diaphragm is to Ernest's microscope. The reason that the iris is colored is from its containing a coloring material called pigment. The same material in the hair or skin gives color to those parts.

The albino has none of this pigment, so his hair is white, his skin pink as a baby's — the blood-vessels show through—and his eyes are pink for the same reason. The albino can not close the shutters, as his iris is transparent, and so in daylight his vision is dazzled, and, like an owl, he can see better by night than by day.



A SECTION OF A HUMAN EYE.

The pupil is the little black hole in the center of the iris, where all rays of light must enter every eye —except those of the albino. This little port-hole is black, only because it opens into a black chamber. Just back of the pupil and iris is the beautiful crystalline lens, C L. This is a double-convex lens in form, and no crystal is clearer. My students, in their dissections and study of the eye, always exclaim at the marvelous beauty of this crystalline lens. This crystalline lens, like the cornea, bends the rays of light still more, so that all from any point of an object wherever they may enter the eye come to a focus on the retina, R, the part of the eye that is able to perceive or take note of light and color. This focusing is absolutely necessary to perfect vision. In near-sighted people the rays are bent too much; in old people too little. The crystalline lens bulges more as we look at very near objects, and less as we gaze at things distant, and so we are able to see distinctly in every case. In "cataract" this crystalline lens becomes opaque, and the person, of course, is blind in that eye. The operation for cataract consists in the removal of the crystalline lens, which is often done in case of cataract in both eyes. Isn't it marvelous that a surgeon can cut right into the eyes, take out a part, and thus restore vision?

Back of the crystalline lens is the jelly-like, perfectly transparent vitreous humor, V H. This seems to be a sort of packing to fill up the space between the crystalline lens and retina. Of course, it must be transparent, else how could the light pass to the retina? The retina, R, is the expansion, away back in the eye, of the optic nerve. This retina is the tell-tale. It reports to the brain all the beauty of form and coloration in the outside world. What a terrible blank in the life, when no such reports are made! The retina is very complex, and I will not describe it.

Just outside, or back of the retina, is the black choroid coat, the dotted line marked C H. This is black because of pigment, and it also contains the blood-vessels that nourish the eye. To see well, the eye must be a black chamber, and so this choroid coat is black; the same is true of the microscope and the photographer's camera. Indeed, every perfect optical instrument has a black lining.

Now, all insects—and so our bees—have eyes of similar structure to our own. The bees have two large compound eyes—one on each side of the head, and three simple eyes. The compound eyes consist of many simple eyes close together. Sometimes each compound eye is made up of thousands of simple eyes. Each one of these simple eyes has a cornea, humors, crystalline lens, and retina, from which a nerve runs to the brain.

We detect form in objects, it is supposed, because we have two eyes, and see a little more to one side of an object with one eye, and to the other side with the other eye. Müller held that bees and all insects could, in the same way, detect form as well as motion and color. His was termed the mosaic theory of vision. Exner opposed this view, and held that insects could not perceive form. Plateau, of Belgium, has just reported to the Belgium Academy many experiments, and concludes with Exner that bees can not detect form. He also says that the simple eyes are imperfect, or rudimentary eyes. That, as he says, bees have no better eyes than flies, is certainly a reasonable conclusion.

Now, what do our bee-keepers say to this theory, that bees can not detect form? Are we not certain that a slanting board, or a slight change in position of the hive, is at once detected? I believe facts, as gained in that large laboratory, the apiary, are often stronger than facts gleaned in a much smaller way by the scientist in his laboratory.

Again, theory would assert quite as readily that the compound eyes could, from their peculiar structure, detect form as quickly as motion. True, motion is ever throwing the image in different simple eyes; but varying form would also affect different simple eyes, and why might not different eyes, as well as a varying position in two eyes, detect form? That the single simple eyes are imperfect, is, I think, true. Often they are so covered with hairs as to make them useless; and the very fact that in many insects they have been snatched away entirely, suggests that they are useless in all. If any reader wishes to study an eye, let him procure a head at a slaughter-house, freeze the eye after it is carefully cut out, then it can be dissected and examined in all its parts. A. J. Cook.

Agricultural College, Mich.

Thanks for the very able manner in which you have treated this subject. I am sure our little friends will find great pleasure in reading from your pen. It was my intention to give the children a little talk on the eye, but I felt myself not "big enough" for the task. I had thought of writing you for what information I lacked, but I see, by a kind of special providence you have anticipated my questions. In another column, since you have opened the way, will be found a few more notes on this subject.

How I should enjoy being one of your students in this special kind of work! It was my hope, after finishing my classical education, to take a special course under you; but fate, if that be the term, has denied me that privilege. Ernest.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.

MONEY FOR THE POOR MAN; THE GREAT ACME PENETRATIVE.

UNDER the above title, or something like it, you will notice, in many of the papers, a picture of a stump on fire, with an advertisement of a chemical that will be sent for a dollar, sufficient to burn any stump, green or dry, and the dollar's worth will burn up, root and branch, 12 large stumps or 18 medium-sized ones. The advertisement says the compound contains no saltpeter. We sent our dollar and obtained a pinkish-colored compound that *does* contain saltpeter. A circular came along with it, headed, "Money for the Poor Man." On the last page of said circular are quite a number of testimonials from farmers, relative to the wonderful results obtained by the use of this Acme penetrative. Every one of these testimonials, however, is destitute of address and date. The advertisement comes from F. E. Fross & Co., New Carlisle, Ohio. In writing to the above firm in reference to sending out such testimonials they make no reply. The paper wrapped around the Acme penetrative was part of an advertising circular of a firm in New Carlisle who formerly dealt in bee-supplies. The *Ohio Farmer* contains a caution to farmers about a new kind of seed wheat, also coming from this Fross & Co., with the name spelled a little differently. The *Rural New-Yorker* also has a caution in regard to swindles about a chemical for burning out stumps. The whole matter seems to be in some way mixed up with the names of those who formerly advertised bee-supplies from New Carlisle, therefore our bee-friends will probably get an abundance of circulars from this place. If there are some honest men doing business in seed wheat or bee-supplies at New Carlisle, we would caution them about letting their name be mixed up. or their circulars, with F. E. Fross & Co. If they want a hearing, we shall be glad to give it.

I should have said in the outset, that the directions for using this Acme penetrative tell us we must wait two months and a half after putting it in the stump, before the stump is ready to burn; so you see they have two months and a half to run their advertisement before any one can gainsay their claims.

HEDDON'S NEW BOOK, "SUCCESS IN BEE CULTURE."

ALSO SOMETHING ABOUT HEDDON'S NEW HIVE.

THE book in question is paper bound, 128 pages. It is profusely illustrated, but we are sorry to note that a good many of the new illustrations are not engraved as they should be; in fact, the book explains that the engraver did not do his duty. Friend Heddon has evidently had experience in trying to make engravers picture things as they are, instead of some heedless plan of their own. It is an excellent plan to have the engraver make a drawing first on the block, and don't let him engrave it until the drawing is as you want it. The book contains many terse and valuable thoughts, characteristic of friend Heddon's vigorous brain. And now, however much we may find in the book to criticise, it is well worth half a dollar. The food for thought that it gives to every bee-keeper, young and old, it seems to me, is well worth the cost of the book. I think, however, it should be read in connection with other works on bee culture, as so many things are passed over in a brief way, from necessity, on account of the size of the volume. The principal feature of the book is, to me, Heddon's new hive. The hive we talked so much about a year ago is described in the book; but the new one is to throw the old plan entirely aside. The principal feature of the new hive is in making the brood-apartment in two stories. Each story contains frames only 5⅜ inches in depth. These frames are closed-end frames. On account of their shallowness this will probably be no great obstacle in the way of manipulation, and friend Heddon claims that almost all necessary operations can be performed without removing these shallow frames at all. To facilitate this, the top and bottom bars are made only 13-16 inch wide—a little narrower than ⅞, you will notice. Years ago I thought of making a hive without frames, somewhat on this principle, having the combs shallow, and pretty widely spaced with narrow top and bottom bars. My plan then was that we could reach down between these narrow top and bottom bars, widely spaced, so as to cut out queen-cells, or see brood, even to a depth of two or three inches; turn the hive over, and a depth of two or three inches on the other side would put all the combs under our control or under our eye—at least without taking the combs out. Two of these shallow brood-nests give a capacity of an ordinary lower story. The sections are put in shallow wide frames. It is a little amusing to see friend Heddon go back and declare in favor of wide frames, and *separators* also, after the way he has denounced both for a year or two back. If I were he, I would be a little mild in denouncing any thing, especially if I expected to change my plans within a year or less. It is true, however, that a very progressive mind must change in opinion as it explores new and different fields. The wide frames, with separators to hold the sections, are exactly the same as the case for three section boxes, which has been for so many years illustrated in our price list, only it is made to hold four sections instead of three. Both the brood-frames and wide frames are closed-end, and rest on a strip of tin at the bottom of the hive or case. Like Quinby's closed-end frames they have no projecting arms, but are alike either side up. This makes the frames reversible, and the hive is also reversible. Of course, you can not get the frames out of any hive or section unless it is a certain side up. The ends of these closed-end frames come close against the ends of the hive, for the frames themselves, outside dimensions, are only 1-16 inch less than the inside of the hive.

A good many things may be accomplished by dividing a hive horizontally into two sets of shallow frames. It occurred to me at once that this shallow hive would be a splendid thing for shipping bees, especially so since friend H. makes the whole thing solid, and fixed by a wooden thumbscrew to put through the hive at the proper place to screw up the frames tight, the screw striking the middle of the end-bars of the frames. In this shape it is reversible at pleasure. The bottom-board is cleated around its outside edge so as to give the necessary bee-space when the first story is placed on the bottom-board. Friend Heddon enumerates a great many advantages to be secured by this shallow frame. I believe he has not mentioned, however, what seems to me to be a great and serious disadvantage. It is this: He is dividing the brood in every comb right through the center, or heart of it, and interposing two sticks and the ⅜-inch air-space. It is true, the queen may be made to do very fair work in a comb only five inches deep; but from the way in which queens seem to prefer to lay their eggs in a circle, say from six to eight inches in diameter, I can not think you can get this circle down to less than five inches without loss. It is true, she may make the circle embrace the combs in the upper story as well as the combs in the lower story; but then we have this division above spoken of in the heart of the brood-nest.

Friend H. has a patent on the hive. Of course, he has a perfect right to have a patent on it if he thinks it is the better way; but in view of the fact that so many of the features of his new hive have been in common use, if I were in his place I think I would not have had a patent on it. I hope he will excuse me for venturing to give my advice when it has not been asked. We have discussed patents so much already, I do not believe it will be worth while to go all over it again; but that these shallow frames will answer tolerably well, has been proven repeatedly. T. F. Bingham has used for years a hive with frames only six inches in depth, and Heddon's are only a little shallower, as you will see. R. Wilkin, when he used to live in Ohio, also used a shallow-depth frame; but after a great many years of experiment with them he abandoned them. The closed-end feature is not new; the idea of putting screws through the side of the hive to tighten up the frames together is not a patentable idea. The whole arrangement, however, is sufficiently different from any thing heretofore in use, and friend H. is, without question, entitled to a valid patent, if he thinks it best to have one.

We should like to know how many seasons he has tested this, if more than one. I should like to give illustrations of the whole hive; but I confess I should want some better engravings than are found in the book. If friend H. will send me a hive just right I will have some good engravings of it made, at my own expense. We can mail the book on receipt of price, 50 cents.

DISASTROUS WINTERING.

HOW THE BROKEN RANKS WERE RECRUITED.

IN 1884, white clover yielded bountifully in this vicinity. I began the season with 74 colonies, which I increased by natural swarming to 102, besides receiving a nice harvest of light honey. There was no fall honey. In the fall I removed sixteen miles to a new home. I found it quite a task to remove my bees. I took charge of their removal myself, and did it as carefully as I could; still, I lost one colony by the combs melting down.

At my new home I arranged my hives south of the house. They were arranged in six rows, facing south. The hives were painted, and looked nicely, standing on the green grass beneath the trees. I remember looking at them from the window, and thinking of them as an army placed there to defend my home from want.

As the fall flowers yielded no honey my hives grew light in stores, and less populous. I fed, doubled up, and cared for them until they were reduced to 93, and at that time I was compelled to leave home for a time. When winter set in my wife hired two men who carried the bees into the cellar. On March 26 I carried them out and placed them on their stands. I found many dead, and none seemed more than half alive. That evening I looked out again at my army, but its ranks were fearfully broken. The spring in this region was cold and backward; and although I fed, nursed, and tended, they dwindled, were robbed, and swarmed out, until my army was reduced to 17 colonies. Of these, 5 might be termed fair; the other 12 were little more than nuclei. When I looked out at those 17 colonies, all that remained of my army, I exclaimed, "How are the mighty fallen!"

To relate this tale of disaster would do no good unless the supposed causes were pointed out. I believe that, on account of the scarcity of fall honey, there was but little brood raised in the fall, and therefore winter found my colonies weak in bees, and those few mostly old bees, destined by the law of their nature to die before spring.

Last winter is destined to be remembered on account of its intense and long-continued cold. As I was in a new home the cellar deceived me, not being so frost-proof as it appeared. As my hives were not populous, it was impossible for the small cluster to keep up the heat necessary to a healthy condition in that cold cellar. Then to crown the disaster, after they were placed upon their summer stands I think the weather was unfavorable for them as it could well be, and the result was spring dwindling.

From the reasons I have mentioned, the spring of 1885 yielded me a bountiful harvest of empty hives and combs. After duly considering the condition of affairs, I went out among the farmers to buy bees, and succeeded in picking up 38 colonies in box hives, at an average cost of $3.87 per colony, and therefore began the season with 55 colonies. By what is termed the Heddon method I transferred those I purchased to my own combs and hives. The past summer was not counted a honey year in this vicinity, yet I increased to 75 good colonies, and received enough honey to pay for the colonies purchased. Fearing a repetition of the experience of last spring I prepared my cellar with care, banking up the house, and closing up every crevice with lime mortar. I also placed a stove in it, so that, if the thermometer should fall too low, a fire could be started. Up to the present time my bees seem to be wintering nicely. W. D. RALSTON.

Hopkinton, Iowa, Dec. 31, 1885.

REPORTS ENCOURAGING.

158 LBS. PER COLONY SECURED BY THE DIRECTIONS GIVEN IN A B C.

I HAVE no bees now, but shall open up an apiary in the spring, for it is the best paying business that I ever worked at. I am told that bees did not do well here this season. I did some transferring for two parties, and they seemed to have done well enough. The great trouble is, the bees don't get the attention they should. The first four years after I read your A B C I made 158⅓ lbs. of salable honey per colony, per annum; the highest yield, 300 lbs. per colony, two years ago.

East Newbern, Ill., Nov. 8, 1885. R. S. GIBERSON.

But, friend G., you don't tell how many colonies you had. If only three or four, the report would not be nearly as large as if you made forty or fifty give that amount.

$72.00 RECEIVED, AND NO OUTLAY.

I must send in our report, even if it *is* poorer than ever. We started last spring with 26 poor weak colonies (as we lost more than half of our bees last winter and spring), and increased to 55; went into winter quarters with 54 nice rich colonies. We did not get much honey this year, as the bees did not make any honey from the first of July to September. Then there was a couple of weeks that there was quite a flow of honey, and they filled up their hives, and made a very little surplus. We sold about 470 lbs. of honey; came to $72.00. Not a very big paying summer's work; but one thing is in our favor, we were at no expense.

LOUISA C. KENNEDY.

Farmingdale, Ill., Dec. 29, 1885.

PROF. COOK ON THE PRESENT ASPECT OF TEMPERANCE.

ALSO SOME VERY KIND WORDS IN REGARD TO GLEANINGS.

DEAR FRIEND ROOT:—You already know that I have always approved your course in making GLEANINGS the medium of other thought and suggestion than that which belonged solely to the bee-keeping industry. I think you have done no little good, perhaps as much in helping people to happier and better lives, as in advancing bee-keeping. The firm hold and warm place which GLEANINGS has in the hearts of its patrons is proof enough that I am right. The people recognize the great truth, that we do not live by bread alone. In your calling the attention of so many to the words, life, and teachings of Him in whom was no guile, and who "spake as never man spake;" who gave to the world such inspiring words as, "Let him that is without sin cast the first stone," and, "Father, forgive them, they know not what they do," you have builded, though perhaps not better than you knew, but so well that the structure reaches to hearts all over the land, and bears hope, cheer, and encouragement. Then, again, your good wholesome words on the tobacco habit! Who can tell how many men are cleaner for your timely exhortations? I have sometimes wondered, if Shakespeare had lived in our day, when tobacco drags its horrid presence into so many homes, if he would have said: "What a piece of work is man! so noble in reason, ... *in action so like an angel!* the *beauty* of the world!" for when we think of it, what more irrational than that men should form and continue a habit that renders them filthy and disagreeable to associates; robs — yes, worse than robs the pockets, often injures, and even destroys health, and, worst of all, blunts those finer feelings of courtesy and good taste which it behooves us all so studiously to cultivate? I am glad, dear brother, that you have fired such telling shot into the ranks of the army of tobacco-slaves. It must have pleased you to see how very few at Detroit used tobacco; and those who did, so far as I saw, were those whose locks tell that they are beyond the years when advice finds ear, or good counsel takes root.

But there is another habit whose wrongs, whose evil tendencies, whose blasting work of sin and ruination, so pales the tobacco habit that you and I, and every patriot, not to say Christian, feels that to stay its ghastly tread would be the glory of the age. Slavery blasted the hopes and lives of only a portion of one race: intemperance reaches its horrid, blasting hand into the homes of all races, and is cursing homes in every land. So great an evil can not long go unchecked. If, as I believe, the John the Baptist in this glorious liberation is to be education, then GLEANINGS, and every voice and press in the country should make bold strokes toward this desired enlightenment.

Prohibition has always had my sympathy, and I would gladly give it my heartiest support; but it seems not to touch the key to the problem, and is more helpful as an index to improved sentiment, I fear, than as an active means in destroying the evil, which all good men would see banished from the world. It seems to me that at present, prohibition is not practicable. So many of our best temperance workers have no confidence in it, and so give it no aid, that our ranks in that line are fatally weakened. Again, prohibition does not prohibit where prohibition is most desired. True, if it work only a partial stay of the curse, it is good; but if it holds back some stronger force that would wield a far mightier power, then surely its presence as a law or a scheme to be urged, is unwise and impolitic.

We all know that prohibition, in places where there is not a moral force to sustain it, is inoperative; and the fact that it fails where most needed is made a strong argument against it. Again, while many of us shrink from licensing any evil, least of all so terrible an evil, yet if a license will stop in any degree the sale and use of this demon alcohol in places where prohibition is impotent to do good, then surely on that axiomatic authority, of two evils choose the least, we should favor license under a heavy fee. Now, why would not a law like that already adopted in some of the States suit all, do most good, and get the support of all temperance people? That is a license with a heavy fee, in conjunction with local option in every town and village or city where it can be carried? That gives us prohibition where it can do any good, and does not remove license where only license can be effective. It seems to me this is where we can all unite, and is worthy our best consideration. Why not all of us urge it, and work the people up to its adoption. GLEANINGS can do much in this line. I do not see how this plan can fail of general support, and I am glad to urge it in season and out of season.

A. J. COOK.

Agricultural College, Mich.

Friend Cook, I am glad to know that you are deeply anxious in regard to this matter that lies so heavily on the hearts of our best people; and the greatest cause for anxiety now seems to me is, that people's convictions differ so much on what is best to be done. Many of our best Christians are positive that a certain course is exactly the course, and that no other can be right, while I find those who seem to be equally honest and earnest feel just as strongly that it is *not* the best way nor the right way. Many of the readers of GLEANINGS will feel hurt, no doubt, at some things in your kind article above (please turn to Our Homes for July 15th, 1883), while many others will rejoice to know that you have decided just as they have decided. Now, even if we can not think alike, let us try to have charity and kind feeling toward each other; and let us always be open to conviction. At one time during our civil war, when General Grant was pushing ahead, even though disaster and loss of life resulted, as it seemed, continually, many of our best and wisest people thought he ought to be stopped; and even his friends began to tremble for the consequences. Who was right and who was wrong? began to be the terrible question to meet. Who shall dare to take such awful responsibilities in matters where such terrible consequences are constantly following? Who should decide when none but God could know the outcome? Grant was allowed to go on, and it eventually transpired that he was wiser than all of us. He knew exactly what he wanted to do, and he did it. May God help us now in this present crisis.—I am very, very thankful to you for the encouraging words you have given GLEANINGS. What little I have been able to accomplish I never could have done had it not been for the kind and earnest support and encouraging words from God-fearing friends like yourself.

BEE DIARRHŒA: WHAT DO WE KNOW ABOUT IT?

MAY IT BE THE FAULT OF THE QUEEN AND NOT THE BEES?

FOR the past three or four years I have been of the opinion, that if our bees could fly every two weeks or oftener we should never know of such a thing as bee-diarrhœa; and while I am of the same opinion still, as far as our losing large apiaries is concerned (with the above conditions present), yet I have had an experience the past fall and this winter which shows that bees can have the bee-diarrhœa when they have a chance to fly often. This experience also points toward the trouble being caused by the queen, and wholly upsets nearly if not quite all of the theories which have been advanced regarding this dreaded disease of the bees.

The fore part of September, 1885, I commenced to prepare my bees for winter by looking each one over carefully, taking out the frames to see if they had honey enough, and to know their condition generally, as I gave on page 731. In this way I prepared a few colonies a day, along as I had time from my other cares, so that I did not fully complete the job till October 15. In thus preparing them I found that only 5 out of the 95 colonies had any brood in their hives, four of which had young queens which began to lay about Sept. 25th, the colonies of which were formed by uniting several nuclei together, and one other which was the colony which cast the third prime swarm of the season; consequently it had one of the first queens reared during 1885, as the colony was allowed to rear its own queen. This last-named colony happened to be one of the 15 last gotten ready for winter, and was prepared on Oct. 12th. At this time I noticed a little patch of brood in one comb about as large as a silver dollar, which looked similar to the first brood started by a colony in the spring. The queen looked rather larger than the other queens in the yard, and more as a queen does in early spring. They had plenty of well-ripened basswood honey, and a fair amount of pollen. A few days after this the hive was packed for winter, as were the most of the rest of them at that time. From the 20th to the 31st of October, all my bees had three or four flights, as they also did on one or two occasions in November, at which time those colonies formed by uniting nuclei, which had brood in them, carried in pollen from the witch-hazel quite freely; but from long-continued watching I failed to see a bee carrying pollen into the hive above mentioned. Instead of this they acted as nearly all colonies of Italian bees do in early spring; *i. e.*, they were standing thickly about the entrance, with many bees flying; those not flying were acting as if they were trying to guard the hive from robbers. As it came late in November I would see them flying upon days when not a bee would be stirring from any other hive, and now they began to show outward signs of diarrhœa, as they would spot the tops of the hives about them in their flights.

I was resolved, that if a day occurred that was warm enough to handle bees I would open this hive and see what I could learn regarding them; but so far there has been but one day on which this could be done, and that was when I was at Detroit at the bee convention. The day before Christmas they flew some, with the mercury at 44°, but I did not think it best to open them when so cool. The next day after I got back from Detroit I raised the hive from the bottom-board and found several immature young bees, all of worker size, on the bottom-board, at which time I cleared off all the debris found. At that time the hive seemed filled with bees, some of which flew out while I was cleaning the bottom-board, spotting the snow, and soon dying, as all bees do when they have the diarrhœa, and can get out. I have again this morning cleared the bottom-board, getting about a quart of dead diarrhœtic bees, together with quite a number of immature bees, the most of which are now dwarf drones. There was also a large quantity of as nice white wax scales fallen to the bottom with these dead bees, said scales being as perfect as any I ever saw in July. The bees, instead of occupying the whole hive, are now reduced so that they are between only five combs, occupying four spaces. Those on the outside of the cluster (if they can be said to be clustered) are bloated to nearly bursting, while the combs and surroundings are soiled, and smell as badly as do such hives having had diseased colonies in them, and dying in March. In fact, to-day, Jan. 1, 1886, they are in the last stages of bee-diarrhœa, which disease, it is evident, began about Oct. 1, when that little patch of brood was started. Now, what caused it? Did the queen and bees know that she was to become a drone-layer, and thus try to rear brood out of season so as to get a new queen? Or what did that desire for brood spring from? Surely it was not cold nor confinement nor dampness, nor their being obliged to eat pollen, nor any of the many causes heretofore given as producing said disease. Perhaps friend W. F. Clarke, of Canada, will say it was lack of hibernating. Well, perhaps it was; for all the other 94 colonies, both in the cellar and outdoors, even to the four colonies made of united nuclei, are in that quiescent state Mr. Clarke calls "hibernation."

Borodino, N. Y. G. M. DOOLITTLE.

Friend D., this matter was discussed some years ago, you may remember, and the thought brought prominently forward then was, that it so often happens a colony will winter all right, year after year, so long as the old queen lives; but when a new one takes her place, then we have losses in wintering. Almost every bee-keeper has had particular hives that always wintered nicely, and gave a good yield of honey, and large increase in bees, until the queen was changed or superseded, and then troubles came. I have been strongly of the opinion for some time that queens sometimes have much to do with this matter; at other times the peculiar good qualities of a set of combs seem to have something to do with it; and, again, the location of the hive, where wintered outdoors — its protection from the prevailing winds, etc., has seemed a factor. I am glad you have called attention to the matter of the queen in regard to this matter of dysentery, for may be there is more there than we have suspected. You know the "nameless disease" is often cured by exchanging queens.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

WORSE AND WORSE; BUT, GREAT IS TRUTH, AND WILL PREVAIL.

WE copy the following from the Chicago *Advance* of Dec. 31, 1885. You will notice that it is not hearsay, but something from the editor's own personal experience.

Pliny, the historian, laments that in his degenerate times men had learned to imitate realities and practice frauds upon the people. In proof of this he mentions a case in which Egyptian priests, who understood the natural sciences better, perhaps, than any others in the world at that time, had palmed off on the public counterfeit precious stones. They had learned to color glass, and take stones of varied values and cement them so that the untrained eye could not distinguish the combination from real gems. But what would Pliny think if he lived to-day and found what progress had been made in the art of imitation? We have laws against counterfeiting money, but none against adulterating food. I believe that thousands of people every year are seriously injured, if not killed, by the use of impure food.

I have recently had some personal experience in this matter. I tried in vain to get pure butter at prominent groceries in this city. It was oleomargarine, or something else, every time. Then I sent to the country, and procured some real butter from a family that I knew, but when it came it was artificially colored and wholly unpalatable. At last by writing to the interior of Iowa to a personal acquaintance I succeeded in getting pure butter. The time was, until recently, that if one got honey in the comb, he was sure about it. But all that is changed. Men have learned not only to manufacture the comb much more rapidly and cheaply than the bees can do it, but now fill it, capping the so-called honey cells by machinery, and sell it at a lower figure than any at which the real honey can be produced. Some of our readers know unscrupulous men in the country who having bought a few hives of bees, almost immediately began selling great quantities of honey in the comb. They procured it from the manufacturers of the adulterated article, but any one familiar with the taste of the real honey easily detects the fraud. I went to one grocer in this city, who had recently purchased, from Ohio, a thousand pounds of what he honestly supposed real honey, and convinced him in five minutes that almost the entire quantity was made up of syrups, deftly secured in the comb. He simply said, "What are we coming to?" We have no State laws sufficiently guarded in their provisions to reach these rascals, and punish them as they deserve. It may be permissible to manufacture the stuff called oleomargarine, or butterine, but to sell either as butter should be made a criminal offense and punished accordingly.

One of the most unique cases of adulteration that has yet been mentioned is reported from New Jersey, where a man was arrested a few days ago for selling false eggs. The shell was made of some translucent substance; the white of an albuminous preparation, and the yolk of saffron and carrot. Strangest of all, they made a very good omelet. The fraud was detected only when they were boiled. The ingenious manufacturer exhibited his wares to a New York dealer, and declared that they could be made on a large scale for half a cent apiece, while real eggs cost from three to four cents. I should think these conspirators would be ashamed to look an honest hen in the face.

You will notice that the editor goes back to Pliny, and laments the degenerate times. He does not tell what he has heard, nor does he copy from other papers, but he tells his own personal experience. In regard to the butter part of his story, I will leave that to the dairy people and dairy journals; but, Mr. Editor of the *Advance*, we beg leave to inform you that men have *not* learned to manufacture comb, and fill it with honey or any substitute.

If you have a desire to be fair and just (and the editor of a Christian journal certainly should have), we ask you to give us the name and address of the grocer who purchased that thousand pounds of honey from Ohio, that we may correct him as well as yourself; and when you give satisfactory proof that that comb honey was manufactured that you saw, we will pay you $1000 for the information. In behalf of the State of Ohio I also call upon you to give the name of the man from whom that honey was purchased.

"What are we coming to?" surely. In regard to your wind-up on the egg business, we beg leave to submit to you the article in our last issue on this matter. Now, if you refuse to notice this, or to do simple justice to a large class of people whom you have injured by your statements, we, as a body of bee-keepers, refuse to subscribe to your paper; and we call upon Christian people in general to aid us in bringing about justice. We are thus vehement in the matter, because, month after month, agricultural and religious papers persist in publishing such damaging false statements; and not only that, they almost without exception refuse to correct the mischief they have done. The *Rural New-Yorker* and *Prairie Farmer* have given us a hearing; but the rest of the press, at present writing, seem almost wholly given over to persistent falsehood. They remind us of the text, "He, that being often reproved hardeneth his neck, shall suddenly be destroyed, and that without remedy." and I have not a bit of doubt but that the warning in the text will be ultimately fulfilled. No doubt the man who manufactured (?) artificial eggs will be ashamed to look an "honest hen" in the face; but, how about the editors who get up these stories?

Since the above was written, Ernest has returned from New York. Among his wife's relations is an inspector, appointed by the State of New York, to look up artificial butter, or oleomargarine. This State inspector visits the restaurants and groceries in the city of New York. He does not tell them who he is—goes into a restaurant as anybody does. Whenever "oleo" is given him for butter, the proprietor is punished according to law. Well, how much do you suppose he has found that was not butter? comparatively little—at any rate by no means such a large amount as the newspapers state. Very likely you will say he is bribed; but, dear friends, we happen to *know better*. Now, of course, I do not know about butter as I do about honey and—eggs; but I will submit to your own good sense, readers of GLEANINGS, is it not quite probable that the editor of the *Witness* tasted some poor butter, and jumped to the conclusion that it was manufactured? By the way, another fact has come out in regard to artificial honey. A good many have been calling poor dark honey in the combs, especially where it had a disagreeable flavor, manufactured "stuff." Most of the readers have had some experience in honey-dew stored in combs, and know to their sorrow that it is *stuff*, without question, but not manufactured, by any means. If one were going to manufacture honey he would probably have something a good deal better than a good deal of the bug-juice that the bees have gathered and put into combs. I beg pardon for using the term "bug-juice," but nothing else would fit under the circumstances.

A SLEIGH-RIDE OF 150 MILES.

From 400 to 850, and Over 20 Tons of Comb Honey.

PURSUIT OF BEE-KNOWLEDGE, AND THE RESULT.

DURING the last week of March, 1885, the sleighing being excellent and the weather fine, and having business near Rutland, Vt., 40 miles from my home, I resolved to perform the journey with my little black pony "Nig." The journey was easily and safely made; and the next day at 3 o'clock, my errand having been accomplished, I called for a map of Vermont, and sought out the location of Bristol, the home of A. E. Manum. I found I should have to travel about 35 miles further to reach that highly favored place. At 8:30 in the evening, Nig had put 23 miles under her feet, and we found ourselves at the Addison House, in Middlebury, Vt.

While entering the State of Vermont from New York, one would think, from the nature of the view before him, that very hilly roads were to be encountered; but an agreeable disappointment is in store for the traveler. The roads follow up the streams; and though there are rugged mountains upon each side, the road is comparatively level; and as we pursue our winding way the scenery is ever shifting, showing us beautiful and romantic views, and which occasionally reach the point of grandeur.

From Rutland we follow up the Otter-Creek Valley; and from the amount of dairying and stock-raising that is carried on here I should judge it to be a good honey locality; and from appearances there are many locations that are not occupied with bees. There is much alsike clover raised upon these low meadows, and an abundance of basswood upon the mountains.

Learning that J. E. Crane, one of the great bee-men of Vermont, had moved to Middlebury, I soon found him and had a brief visit with him. At that time Mr. C. had about 800 swarms, in several apiaries. It is needless to say that Mr. C.'s yield of box honey is many tons. Mr. C. occupies a new house, which is a model of taste, and, I suppose, so fair an exterior must have a convenient interior.

A ride of 12 miles from Middlebury brought me to my objective point, Bristol. This little manufacturing village nestles snugly in a notch in the famous Green Mountains; a considerable stream tumbles through here, and gives power to several manufactories for working up wood. Among these is Mr. Manum's manufactory of bee-hives, and the famous white-poplar section. The manufacture of these is now conducted by Messrs. Drake & Smith. I found Mr. M., as we should find all bee-men who count their colonies by the hundreds, busily engaged in preparing for the coming season. I told Mr. M. that the object of my journey of 75 miles was to learn, if possible, how to winter bees.

After looking over the factory we adjourned to his residence, where is located his home apiary. At the time of my visit Mr. M. had about 400 swarms, in several apiaries. The well-known Bristol hive is used. This and the N. E. hive, manufactured by H. D. Davis, are very similar, and are largely and successfully used throughout the N. E. States for wintering outdoors. The packing used by Mr. M. is poplar shavings. The peculiarity of this wood is the amount of water it will absorb, and the shavings will absorb much moisture, and not become damp. We examined several hives, digging down through the loose shavings, and turning back the quilt. We found the hives full of bees, and very lively. The entrance to this hive is from the under side toward the center, and nearly all dead bees soon find their way to the ground. I think the hive would answer for W. F. Clarke to try his hibernating theory with. Mr. M.'s method is to leave a portion of honey *and pollen*. These frames of honey are all placed at one side of the hive. If there is any brood it is placed at the other side, and empty combs inserted, and the bees are fed up on granulated sugar. The stores are in such shape that the sugar is mostly consumed through the winter, while the honey and pollen are consumed in the spring. Mr. M. claims that honey is far better than sugar for stimulating brood-rearing in the spring. Not only the method of preparing for winter, but the hardiness of the bees, is of importance; and Mr. M. claims to have bred that good quality; and if we are to judge from his successful wintering of them, he has attained success in that direction. His yields of honey have also been remarkable. The 400 swarms in the spring increased to 850, and a yield of upward of 20 tons of comb honey, I believe, has been obtained. One swarm on scales gained 91½ lbs. in three days—30, 30¼, 31, during basswood bloom.

Mr. M. has many appliances of his own invention. His appliance for reversing frames is simpler and better than any thing I have ever seen. It is simply a piece of hoop iron, one end bent to form a projection and hook; the other end is provided with a hole by which it can be attached to the middle of the end-piece of a frame. A small notch is sawed in the frame for the hook to catch into.

I could spend but a few hours with Mr. M., and at 4 o'clock Nig and I were on our way back to Middlebury. The next day we got over the distance of 50 miles through another portion of the State, and parallel with Lake Champlain. We passed several apiaries of Bristol hives, and longed to call upon the owners; but the beautiful snow was wasting, and we had to speed homeward or encounter much bare ground. After passing the night in Whitehall, an easy drive put us home again.

As a result of the trip, I am wintering 100 swarms of bees outdoors, not in Manum hives, but packed very similar to them, and fed to a certain extent on granulated sugar. I also have nearly 100 in the cellar. Should any one desire a more full description of Mr. M.'s method they will find an article from his pen in Alley's Handy Book, latest edition.

Hartford, N. Y., Dec. 31, 1885. J. H. MARTIN.

I am sure, friend M., we are very much

obliged to you for your vivid account of your profitable visit. At the Detroit convention a pleasant-looking man came up and said he wanted to shake hands with his benefactor, or something of that sort. I asked him what he meant by that, and he said he was A. E. Manum, and asked me if I remembered the time I advised everybody to send for a sample of his white-poplar sections. I told him I ought to remember it, because it was a pretty hard struggle with conscience before I decided to admit that somebody else was making better goods than I was, and to advise the friends to send there for them. He said my notice so overwhelmed him with orders that it gave him his first start in business, and enabled him to build up such an apiary as friend Martin tells us about.—Over twenty tons of comb honey as the product of a single season! Just think of it!—In regard to the reversing device used by friend M., I will explain that it is quite similar to our own, only that it is made of a strip of heavy hoop iron; and the last end, where it comes up over the top-bar, is turned straight downward, and snaps into a saw-cut made at the proper place across the top-bar to the frame. This device was submitted to us some time last summer, but we can not remember now who sent it.

DISTURBING BEES IN CELLARS.

FACTS AND SUGGESTIONS FROM C. C. MILLER.

I CAN not believe it is a good thing for bees to be disturbed in winter, and yet I am obliged to confess it is by no means so harmful as I formerly thought. One winter I had a hive so placed that it got a pretty good kick about once a day. I could not see that it was any the worse for it.

LENGTH OF LIFE AFTER STINGING.

In trying to ascertain how long a bee will live after losing its sting, the experiments, so far as I recollect, have been faulty in one particular. The bee, after losing its sting, is caged or confined, and this alone would shorten its life. To make the experiment at all satisfactory, an uninjured bee should be confined along with the stingless one, and the difference in length of life noted. Care should be taken that the bees should not be injured in handling. I have many times seen so much of the viscera of the bee come away with the sting that I can hardly believe the bee could live very long; but I have a good many times been surprised to see bees that showed evident marks of having lost their sting, lively and bright in appearance, in colonies that I had no reason to believe had been in any way disturbed for a day or two, and no stinging going on at the time of my handling them. Of course, they *may* have stung some person or other bees, without my knowledge, but I am afraid we don't know much positively about this matter.

BAREHEADED BEES.

I have just been looking in A B C to find what Mr. Root says, but can't find it. I feel pretty sure, however, that somewhere he has said it is all right and proper to have young bees in cells nearly ready to hatch, with no capping over them. For several years I have had the impression that such things were not all right, and rather settled upon it that, when I found bareheaded bees to any extent in a hive, I wanted a new queen in that hive. I still lean in the same direction; but until the past summer I had no idea what was the immediate cause of the trouble. I *think* it is the wax-worm. Did you never notice that the bareheaded bees were more or less in rows, somewhat as you leave uncapped cells when digging out their galleries in search of worms? Another thing: Did you ever see any bareheaded or uncapped grubs older than the ordinary age for remaining uncapped, say about a week from the egg, and yet so young that the head of the young bee was not plainly formed? I don't think I ever did. Now, the young bee is ordinarily sealed up about 11 days; and if the bees leave them unsealed, we should be able to find them at all stages of development; but I never saw one unsealed presenting the appearance of a larva within two or three days after the time of sealing. Since writing the above I find this in A B C: "You can rest assured that the bees almost always know when it is safe to let the children's heads go uncovered." Now, I don't quite think they ever leave them uncovered, till the wax-worm uncovers them, or runs a gallery over the bees in the cells for the bees to dig away, thus leaving the cells uncovered. If the bees think it safe to leave some of them uncovered, why not in larger patches? and yet, did you ever see a patch so large that you could lay a silver dollar upon it, and have all the cells under it uncovered? Perhaps by observing next summer we can settle the matter.

COLOR OF POLLEN.

It is a thing of some interest, and at times may be of importance, to know the sources of pollen; and it would be a help in this direction if we knew the color of the different pollens. Suppose the juveniles, and elders too, for that matter, send in, next summer, lists of the different colors of the pollens they have observed by seeing the bees at work on the plants. From this, Ernest might make a pretty full table; and then if it were put in the A B C it could be referred to at any time. I will start by giving: Plantain, white; poppy, black (I think likely, however, the color of poppy pollen may vary with the color of the flower); burdock, I think it is white, but I'm not sure; then I was going to give white clover, brown; but I don't feel very sure without having it before me, showing pretty plainly that my powers of observation have not been as carefully educated as they should have been. For the young, this may be an important step in their education.

LENGTH AND CALIBER OF SUB-VENTILATING PIPE.

Perhaps we are not far out of the way in settling upon three or four feet as the best depth, all things considered, to lay tiles for sub-ventilation. Now, what is the best length, and what sized tile is best? The larger the pipe, the more air it will admit, but, at the same time, the colder it will be. The longer the pipe the warmer the air; but a pipe a mile long would probably not make the air much warmer than one 200 feet long. If one tube is made of four-inch tile, and another of six-inch, the six-inch one will admit more than twice as much air as the four-inch, but it would have to be longer to admit air as warm as the four-inch. If the cost of the tile be the main item of expense, then it may be best to have six or eight inch tile, and run it deep enough and far enough to secure the desired warmth. If labor is principally considered, it might be better to lay two four-inch pipes about a foot apart. This would require only one trench to be dug, and give warmer air than if larger tile were used. I wonder if we can get answers to these questions: What sized tile is best, in general, to use? When laid, say four feet deep, how long a pipe of six-inch tile will admit air of same temperature as 150 feet of four-inch tile? My sub-ventilating pipe is of four-inch tile, laid three to four feet deep.

C. C. MILLER, 179—340.

Marengo, Ill., Dec. 28, 1885.

After I had written my reply to Nettie Cranston, page 70, we received the above communication from you. You observe that I took the same ground; namely, that we are liable to err in supposing that bees *invariably* die after losing their sting. Since your opinion confirms what I have read somewhere, I feel better satisfied that a bee *may* live a number of days after the loss it has sustained; but I do not see why caging on the Good candy necessarily hastens the death of an injured bee when the latter, according to the reports so far, survive not more than 20 hours, and a perfectly sound bee, with similar treatment, lives on an average a week or ten days.

If any one by actual observation knows of a case in which a bee deprived of its sting lived and gathered honey, let us have it. I have seen instances that led me to suppose that such might be true, but I never could fully convince myself.

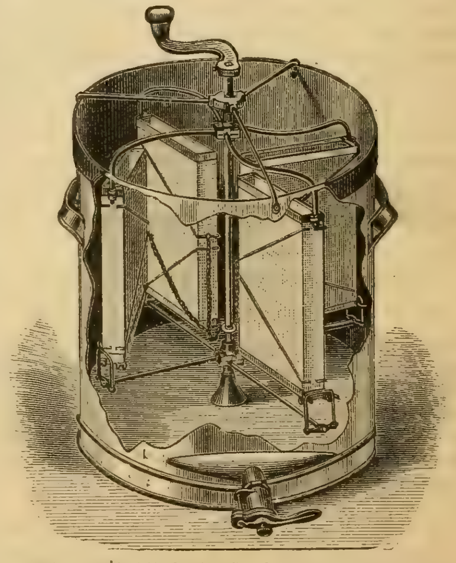
Thanks for your suggestion in regard to the color of the pollen; but a juvenile has already anticipated your idea, as you will see, page 872, last year. You notice the little girl has given the color of pollen from quite a variety of flowers. When the weather opens up I intend to get the juveniles to make a collection of pollen, nicely arranged on a card, much in the way that bugs and geological specimens are gotten up. The sources of the pollen are, of course, to be plainly written below the specimen. With a collection of this kind an inexperienced hand could easily tell what the bees were working on, providing the specimens were accurately named. ERNEST.

I feel sure, friend M., I have seen patches of bareheaded bees a good deal larger than a silver dollar; but it is so many years since I have given the matter very much attention, I may be somewhat mistaken. I know we marked the combs, and the bees hatched out perfectly formed, and all right so far as we could observe. As to whether they were capped a spell and then afterward uncapped, I can not answer; but I suppose they had been, for I never noticed those uncovered until they were almost ready to hatch, fully formed, and partially turned dark. My impression is, the bees opened them for some reason best known to themselves. The openings are nicely arranged with a little edge turned up, something like cells just under the process of construction.—In regard to marking bees that have lost their sting, I would suggest putting a drop of white paint on their backs. This will enable us to hunt them out, even though they have the regular run of the hive.—In regard to sub-earth ventilating-pipes, you say yours is a four-inch tile laid three or four feet deep; but I can not find in either of your articles how long the pipe is. Please give us the length, and then we shall have something to start on.

STANLEY'S IMPROVED HONEY-EXTRACTOR.

A HONEY-EXTRACTOR TO REVERSE THE COMBS BY TURNING THE CRANK IN THE OPPOSITE DIRECTION.

OUR readers will recollect that we have described this machine before; but in the absence of a good engraving we could not give a very clear explanation. Our own engravers have, however, tried their hand on it, and give us the good picture shown below.



STANLEY'S AUTOMATIC HONEY-EXTRACTOR.

You will notice that the baskets to hold the combs are hung by a sort of hinge at the top, with a kind of double hinge at the bottom. This double hinge is after the plan a great many gate-hinges are made; viz., a double bearing, so the frame is thrown off to one side as it is pushed back either way, letting the force of gravity operate to bring it into position again. Well, around the shaft, toward the bottom, you will notice a little ring. Four chains are attached to this ring, with their other ends fastened to the swinging comb-baskets. Take hold of the crank and give a quick impulse, and the baskets, by "mutual consent," swing off their centers. As you continue to turn, centrifugal force would swing them against the side of the extractor were it not for the four chains just described. The little ring jumps up to about the middle of the shaft, and the four chains are drawn taut.

When you have extracted the honey from one side of the four combs, stop long enough for the baskets to commence swinging toward the center, then start up the other way, and they by common consent turn t'other side out. The machine works very prettily. We can furnish them at Stanley's prices, as given below:

The following is our list of prices for machines taking the L. frame, 9⅛x17⅝, outside measure:

2 frames	$12 00	4 frames	$21 00	8 frames	$40 00
3 "	16 00	6 "	30 00	10 "	50 00

The above prices are for machines with no gear, but with crank attached to the top of center-strips instead. We add a good strong horizontal gear for $1.00 extra, or our best vertical gear with crank at side of can for $2.00 extra.

If any size of frame is used except the L. frame, please mail us a sample frame in flat, and write, stating how many combs you want your machine to carry, and we will give you prices by return mail. Do not send measurements, trusting to that to have your baskets made, but always send a sample frame, as we absolutely refuse to make baskets for any other than the L. frame unless we have one of your frames to work by. *This rule must be observed in all cases*, and then we will guarantee our machines to work perfectly.

The machine is represented with a plain crank on top of the shaft, and for four combs I should most assuredly prefer it in that shape.

THE NAMELESS BEE-DISEASE.

SOME FACTS AND SUGGESTIONS IN REGARD TO IT.

LAST September I noticed one of my colonies acting strangely. The bees began dragging out others that were not yet dead, but acted as though they were partially paralyzed. They would lie on their sides, and their legs would keep constantly twitching. Sometimes a bee with its body greatly distended would rush out of the hive with its wings spread out and in constant motion, and hurry off into the grass, as though trying to escape from something in pursuit. The queen was a young one that had got mismated, and the colony had plenty of natural stores, for it had worked better than any colony I have. Thinking that the trouble might be in their stores, in November I gave them all the sugar syrup they would take, which was not much. I thought I could see some improvement, but it may have been a mistake.

January 5 was warm, so all the bees had a good fly. They are all in your chaff hives. A good many dead bees were drawn out of this colony, some looking as though their insides had been eaten out. I caught one that was largely distended, and fluttering off into the grass, and I put it under a microscope. Its body seemed to be filled to the point of bursting with a pale amber-colored fluid which appeared to have exuded in some way, and covered the body with a coat of varnish. The bee panted badly, and kept up a constant jerking motion with its legs. It died while I was examining it. Before it died it voided a perfectly white substance, hard and glistening, and afterward a hard amber-colored substance. I then took a dead bee just drawn out, and put it under the microscope, and found its body covered with the same thick varnish that had hardened, somewhat, and could be scraped off with my knife. I think these diseased bees burst open, and the others ate out the contents of their bodies; for in taking out the dead bees from time to time I have always found live ones in the bottom. Dr. Scranton, who lives near me, has some colonies troubled this way. Is this the "nameless disease"? A. POTTER.

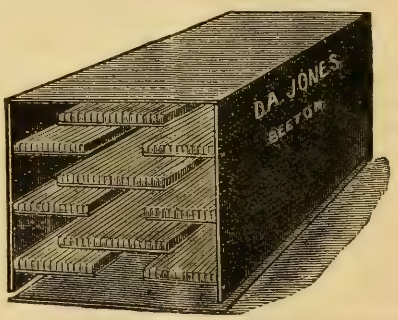
Bennington, Vt., Jan. 7, 1886.

Friend P., you have described the disease exactly, and it is this glutinous liquid, probably, that causes the shiny appearance of the black, emaciated bees as they creep out from the entrance of the hive.

JONES'S FEEDER.

D. A. JONES'S WINTER BEE-FEEDER; A FEEDER THAT WILL PROBABLY WINTER BEES WITHOUT ANY COMB.

AMONG a lot of other inventions brought to Detroit by our clever and liberal Bro. Jones was the above bee-feeder; and before describing it I want to say that the more credit is due friend J., from the fact that he has very little inducement to exhibit these things in the way of making sales, because of the duty. He shows us his inventions, explains to the fullest particular how they are to be made, and does not receive one copper, and no prospect of receiving any. It is solely his generous good will to the bee-keeping brethren.



FEEDER FOR FEEDING THE GOOD CANDY.

The arrangement is a little box about six inches square and a foot long. The sides are nailed into the ends; but before the box is nailed up, the ends have grooves plowed in them lengthwise, about an inch apart. These grooves are made about half way through the end-board; and sticks, ½ inch by ¼ inch, and as long as the end-board, slip into these grooves, projecting enough to hold the grooved shelves shown in the picture. These shelves are made by running strips, ½ inch thick, over a set of dovetailing saws, so as to give them the fluted appearance shown in the picture. The boards are of two widths, as you notice. Those against the sides are 2½ inches wide. The middle ones are 3½ inches. We copy the directions for use, and the prices, from the *C. B. J.* for November.

Take pure pulverized or granulated sugar—the former preferred—and stir it into honey, nicely warmed up, until the honey will not contain further additions. Allow it to stand in the dish until both are thoroughly mixed through each other, then place in feeders and set them on top of the frames, packing all around nicely to allow no heat to escape.

Each, made up,	.30
Per 10,	2.75
Each, in flat,	.20
Per 10,	1.75

D. A. JONES.

Our friends who live in Canada will, of course, get them from friend Jones; and those in the United States who would like to try them can have them at the above prices from our establishment.

A GOOD REPORT FROM TEXAS.

HONEY FROM THE BROOMWEED; FROM 70 TO 100, AND 10,000 LBS. OF HONEY.

WHEN giving you my report in Oct. GLEANINGS, page 679, I believed our honey crop to be all gathered; but since that time I have taken 2000 lbs. more from the same apiary, making a total of 6500 lbs. The above report is only from my home apiary, of which I began the season of 1885 with 70 swarms, and have increased to 100 by natural swarming. The last 2000 lbs. has been from broomweed alone, and is the first time it has yielded in the four years I have resided in Texas, and it is entirely different from any honey I have ever seen before. It has a peculiarity of becoming solid without granulating; in color it is white, with a yellow tinge, and will become solid in 24 hours if it is exposed to the cold.

On Christmas day, bees were making honey from the mistletoe, which is now in bloom.

My honey crop this season was over 10,000 lbs., and has netted me 8 cts. per lb. My plan of selling is to allow only one firm to handle my honey in each town or city, and to sell on its merits alone. One house has sold 2250 lbs. this season for me.

I have sold out my sheep interests, and next season I shall devote my time to bee-keeping; and if the season is good I shall try to make a good report.

I have a water-wheel for motive power to run my saws in cutting out hives. It is one of my own construction, and works finely. I shall use only the Simplicity hive, as for convenience in handling, cheapness, etc., I think it stands without an equal. Wishing you and GLEANINGS every success in the new year, I will close. WM. WRIGGLESWORTH.

Crawford, Texas, Dec. 28, 1885.

FRIEND CLARK'S TRIALS AND SUCCESSES.

FROM 4 TO 18, AND 200 LBS. OF HONEY.

I BEGAN to keep bees in the spring of 1878 by the purchase of one old box hive. I was fortunate enough shortly after to spy the advertisement of A. I. Root in some journal or other, and ever since I have been a very interested reader of GLEANINGS. I went through the A B C, Quinby's New Bee-keeping, and other such as I could get hold of, devouring the entire contents with a relish that would have done credit to a Doolittle or an A. I. Root; but I have never realized any great yields such as I read of, nor have I been able to number my colonies by the hundreds, but I have received a good fair return for all money and time spent, besides the pleasure and recreation, which were worth a great deal to me, for I have been afflicted with heart disease for the last seven years, and it has grown so serious of late years that I have not been able to do any hard work at all. To make things worse, my wife was taken down with fever at the birth of our little girl one year ago, and has never been able to rise from her bed. God only knows whether she ever will or not. It seems awful hard, but we believe all things work together for the best to those who love and serve the Master. But, to return. In the fall of 1884 I had 22 colonies, very heavy in natural stores, but it was honey-dew which hardened in the cells as fast as gathered, and could not be thrown out with the extractor. Having no empty combs to feed up on, I was compelled to let them take their chances, expecting the worst, and I wasn't disappointed; for 19 out of 22 died, and the three that were left were not able to cover one frame each. But I pulled them through, and bought one more. From the four I took 200 lbs. of section honey, and increased to 18, and one went to the woods. I doubled back to 14 in the fall, which have clover honey to winter on, so we feel comparatively safe for next season. Our honey was all sold at 25 cts. net. J. A. CLARK.

Summersville, Pa., Dec. 23, 1885.

A POSTAL-CARD LETTER, WITH SEVERAL MORALS TO IT.

SENDING FROM FLORIDA TO OHIO FOR QUEENS; TEMPERATURE OF WELLS IN FLORIDA, ETC.

FRIEND ROOT:—I thank you for your reply to my inquiry; but by accident (if accidents ever do happen) I found that a former member of your business family, Miss N. Adams, was engaged in bee-keeping about six miles from here, and from her I obtained the needed queens. In view of the experiments that Ernest has recently been conducting, it may be of interest to you to know that the temperature of water as it comes from wells in this part of Florida is about 70°, varying a trifle with the wells. Bees are gathering pollen nicely. Not much honey. The letter was written with a Hall type-writer, made by the Hall Type-writer Co., New York. C. H. LONGSTREET.

Mount Dora, Fla., Dec. 30, 1885.

Now, friends, you see that friend L., who writes the above, wrote us about queens; but by accident, or providentially, if that is a better word, he found out that one of our former pupils, Miss Adams, was raising queens for sale, within only six miles of his place. Just think of it! Very likely it would have been nothing very strange had we purchased queens of Miss Adams, had them shipped all the way from Florida clear up here to Medina, and then sent the same ones right back again to fill his order, when, had we known enough about each other, he could have got the queens within six miles of his home. I like to sell queens, and I like to sell any thing when I can benefit the purchaser as well as myself; but it does me a great deal more good to hear of some of our former employes taking our trade by doing the business in the way above mentioned; that is, where they can do it so much better and so much easier.—Why, friend L., if you do not have any water to drink out of your wells that is colder than 70 degrees, I am real sorry for you. Perhaps you have not got down deep enough. Can some one give us the figures from Florida on artesian wells, say several hundred or a thousand feet deep? May be I shall have to give up my pet theory, that the temperature of the earth is about the same, either north or south, when we get down deep enough.—Now in regard to the concluding sentence. The letters have been so very nicely written that I asked the writer what kind of a type-writer he used, and you have the name and address of the maker. I am sorry, however, that he did not tell us the price.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Dec. 15.

CHAPTER VII.

For dust thou art, and unto dust shalt thou return.—GEN. 3: 19.

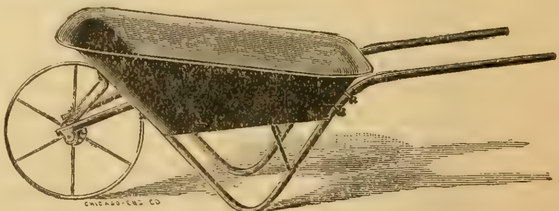
While on the cars on my way to New Orleans, nearly a year ago, I wrote something like this: "I have just made a great invention." The above was put into an article for GLEANINGS; and as months passed and nothing further was said in regard to the matter, several of the friends inquired, "What about the 'great invention'?" Well, the reason why I delayed giving further particulars was because it is a rather delicate subject to handle; and I do not know now but that some of my good friends will turn away in disgust from what I have to say in regard to a matter that seems to me is one of the great matters before the people of the present age. My thought was directed into this channel by the imperfect arrangements on many of our best railroads for the accommodation of the traveling public in the way of water-closets. On my return from New Orleans, while occupying a beautiful cushioned seat in one of the best palace cars, I was suddenly surprised and annoyed by a most intense steaming-up of foul odors. At first I looked at my fellow-passengers suspiciously. Then I noticed that my seat was not very far away from the closet. And this was in a palace car that cost an immense sum of money. The makers had taken every pains, and gone to great expense, in order to have these things fit for cultured and intelligent people. In some of our hotels we have found much the same state of affairs. It has seemed to me that this is the great unsolved problem of the age. Princely hotels, steamboats, palace cars, schools and colleges, expositions, and other places where people of intelligence and culture do congregate, have been planned and devised in vain. Money has been expended lavishly, but only to meet disappointment, and oftentimes disgust. One great difficulty in this matter is the stubbornness of humanity. People will be — I dislike to say it; but, to come right down to the plain truth, the word to be used is—*nasty*. Even well-bred people, or at least those whom we should expect to be well bred, and to be neat and orderly in their habits, look on and see how money has been expended, and how carefully the plans have been laid to make these necessary places o they can be easily kept sweet and clean, but they don't care.

The most *perfectly awful* place of the kind I ever saw anywhere in my life was at the Ohio State Fair. I know it is not in good taste to complain and find fault, but I know there are others like myself who feel almost desperate about the way this matter stands. When I meet the great minds of our age; when I hear them talk at our conventions; when I witness what mind has succeeded in accomplishing with inert matter and nature's forces, I feel as if man were created in God's own image; and when I meet good earnest Christian people, I feel strongly that there is a God part in us all, as well as a remnant of a savage and animal nature. At such times I feel proud of my fellow-men; but when I over and over again meet such sights as I have hinted at, if I have not described them, a kind of feeling comes over me that man is largely animal still, and an animal, too, of which some of the four-footed dumb brutes might be ashamed.

When I call attention to these things I am met with the remark, "Well, what is a body to do?" or, "I do not see that there is any thing to do but to put up with it as the rest do." Probably the bad state of affairs comes about as it does at our country schoolhouses (or, if you choose, our town and city schoolhouses). Somebody goes a little way in transgressing the rules of neatness and propriety, and the next one thinks that, as that seems to be the fashion, there is no way but to follow suit; and probably, without intending it, he is a little worse than his predecessor, and pretty soon all scruple is trampled under foot, and then we have sights that *are* just awful. Our sweet, clean, well-dressed little boys and girls are forced to see sights that pretty soon break down all that a fond mother has accomplished at home in the way of instilling into the little minds a love for cleanliness, order, and purity. I hope this state of affairs is not universal. I can not bear to think it is. And, by the way, if any of my readers know of a schoolhouse, college, or academy, where they have something to be proud of in this direction, and keep it up month after month and year after year, whenever I come that way please ask me to come and see it. I know there are private homes where these things are managed nicely, and even where money is not plentiful, as well as among the rich; and I have many times inwardly thanked God for these exceptions. One case of this kind comes to my mind now. It was a minister's home. His salary was not large, and the good wife was obliged to do her own work, even though three little ones claimed her as their mamma. But these little ones evidently took as much pride as their mamma did, in being careful and cleanly in all their habits, and in making the best of such accommodations as were to be found in a *rented* home, and quite an humble one at that.

Well, how about that invention? Why, it was an invention in this line that made me pencil down, while riding in the cars, that I had "just made a great invention." I felt sure then that it was, and I feel sure yet. It would prove so, could humanity be made or induced to fall in with the end to be accomplished. When I got home I submitted the matter to my wife, before putting it in print, and she pointed out objections that I had overlooked, so I reluctantly kept still about it; but now I will tell it to you, for it is going to be a factor or step, perhaps, in getting at something which I think is a real improvement.

No doubt many of you will ask what is the matter with the dry-dust arrangement—such a one as I mentioned finding at the Agricultural College in Michigan. Well, in the first place, even if the dry dust will work splendidly year after year in such a home as Prof. Cook's, or where you have only intelligent and cultured people, yet years have passed since this was fully explained, and I have not yet found a *public place* where it was adopted. The traveling public would laugh at you, probably, if you should suggest the idea. They are too impatient, too much in a hurry, and too selfish, perhaps, to bother themselves over any such matters. The universal system in vogue everywhere seems to be by the use of water, washing away the offensive matter as quickly as possible; and where the traveling public will not take any pains to operate the simple machinery, a hired janitor keeps an eye on the apartment, and keeps every thing in nice order. I presume one of the most difficult points of the problem is to get a faithful *hired janitor*. I judge it is difficult, because I have heard hotel proprietors severely upbraiding the janitor because he did not keep things more orderly and sweeter-smelling. I have also heard the sleeping-car conductors reproving the porters with terrible oaths, because the porters neglected their regular appointed work. And it is not only the public places where these things are neglected, but it is in private and humble homes as well. Dear reader, I hope you will not be offended if I ask, if it is not true that *you* have, at some time in your life at least, failed to care for these outbuildings as they ought to be cared for. As a rule, I believe our wives have done their part faithfully; and sometimes when they call attention to the matter, when urgent business is crowding, I am afraid we men-folks get a little cross and impatient. Well, in considering these things, and in considering, also, the well-known fact that the contents of these outbuildings make an excellent fertilizer for the garden, I decided on my plan while riding on the cars. The plan was, briefly, this: I would have this necessary outbuilding made much as it is now; but instead of being *under* ground I would have it *on top* of the ground, and have it raised up high enough so that, by opening a door on the back side, or such side as is most cut off from view, an all-metal wheelbarrow, such as we picture below, can be pushed under so that the metal box would come in the right position to be loaded up automatically.



ALL-METAL WHEELBARROW.

Of course, a good layer of dry dust is to be placed on the barrow, and a barrel or box full in a convenient place, and each member of the family carefully instructed in regard to the use of this dry dust. When the wheelbarrow is sufficiently full it is simply pulled out and run out to the garden, and the contents spaded into the plat of ground that needs enriching. If the good man of the household is an enthusiastic gardener or fruit-grower, no doubt the plan would work nicely. The wheelbarrow, as you will notice, is all metal. There is not a particle of wood about it. If it should get soiled, however, or if wanted for other purposes, it can be quickly cleansed with boiling water. One objection to the plan is the expense of such a wheelbarrow. It is, I believe, about $7.00. Another is, it is such a splendid implement to have around for a hundred different purposes, that it could not well be spared for my sanitary arrangement. You might say, then, that two wheelbarrows should be procured, keeping one for this express purpose. But even $7.00 would be pretty expensive for a good many of us—or, rather, the interest on $7.00, year after year. Another objection to the dry-dust arrangement (and this is the one my wife emphasized) is, that the children will manage to raise a cloud of dust, be they never so well taught. Then the outbuilding must be *dusted* as well as *washed*, or, first you know, your Sunday clothing will show dust-marks. Dust is easily brushed off, it is true; but it takes time to go after the clothes-brush, and then put it away exactly where you found it. Besides, you might not notice the dust, and therefore unconsciously appear among respectable people with more "dust of the earth" visible on your outer person than is desirable. And that reminds me of my text at the head of this chapter. We are made of dust, and to dust we must return; and in regard to disposing of the contents of our closets and outbuildings, I am firmly persuaded that the only right plan is to restore this troublesome accumulation right back to mother earth, whence it came. It came from the dust of the earth, and it must ultimately go back there.

I wonder if it occurred to any of you while reading Chapter V., about "The Waters Led Captive," that friend Cole was, whether he knew it or not, opening up an avenue (I guess avenue is the word, is it not?) for the disposal, not only of the sewage and soapsuds from our kitchens and laundries, but also for the disposal of the contents of these outbuildings of which I have been talking. After I had studied the matter over a little it came into my mind that we had arrived to at least one happy solution of a great part of these troubles, and I wrote to him about it. Here is his reply:

HOME ON THE HILLSIDE,
Wellsville, N. Y., Dec. 5, 1885.

Friend Root:—

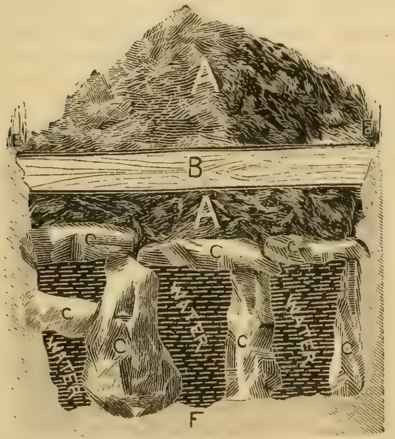
As regards the privy-vault, my own methods tell the story. At the termination of my reservoir trenches above my house, are three successive wells, at different levels, with overflows. These are severally five, six, and eight feet deep, filled with round stone up to the overflow, and as perfectly shingled, sodded, capped, and sealed with clay, with surface soil finishing up, as can be well conceived. The water falls into the first, and passes through filters in succession, till from the last, near the bottom, there issues from a pipe an inch stream of water, as fine as the best in the world, *a flowing well*, which supplies the household, and waters all of our horses, cows, etc. (not a large number, but of sufficient intelligence to refuse to drink from any other fountain). The bore of the pipe being only an inch, the water rises in the well and overflows, running down, passing in constant stream through our privy-vault, and liquidating the solids; the stream moves on into a deep trench across the garden, from which, overflowing through filters, and flowing through surface and percolating through subsoil, my spring brook is reached, the water being perfectly clarified.

Next spring I begin work to drop all surface washings about the barns, sty, hen-house, etc., into trenches, saving all liquids and solids operating as food for plants, and filtering and completely purifying all waters. The rains, dews, and snows are all run through the soil, nor are any at all seen upon the surface; and to this complexion will it come at last, when ushered in shall be the new heaven and the new earth, with their good time coming. I shall see only its advent here, but shall go where it has been already realized, and I am content. Hoping to meet you there, if not here, I am very truly your friend, A. N. COLE.

You will notice that friend Cole has almost unconsciously, as it were, accepted the present condition of things, admitting that the plan followed by most of our institutions is the most feasible plan; viz., using water as a means of cleansing these places. Heretofore the question has been, What shall we do with these washings, and sewage in general? I do not know exactly how large cities dispose of their sewage; but, I believe, as a rule it is run into the rivers, lakes, or ocean. The town of Pullman, in Illinois, has set an example by utilizing the sewage of that city for raising vegetables; but I do not know how it is distributed among the growing plants—probably by a system of pipes under ground. If any of our readers can give me any more information in regard to the matter, I shall be very glad of it.

I will now tell you what we have already done in this matter at the Home of the Honey-Bees. In accordance with friend Cole's instructions I have dug a system of underground reservoirs. We did it during the mild weather in the latter part of December and first of January. The engraving on the next page will make it plain to you how we constructed them.

Perhaps I should preface my explanation by saying that stone is so scarce on our ground we are obliged to purchase broken fragments from the quarries at $2.00 a carload, as I have mentioned before. Well, although the stone costs only $2.00, the freight on the carload was $9.00, making in all, perhaps, a dollar for a good two-horse wagonload of broken stone. Now, as the purpose of our reservoirs was to get as much room for water as possible, at the same time using as little stone as possible, we placed them as figured in the cut, so as to make interstices, or water-passages. C, C, represent the stones; A, the earth; B, a board put in temporarily to keep the bank from caving into the last-made pit. In practice we use two such boards, 14 or 15 inches wide. The ends are let into the bank so that they will keep the dirt from caving in when the dirt is thrown in on the front; when they are no longer needed they are pried out with a pick, and moved along to the next excavation. F is the solid earth before being dug.



AN UNDERGROUND RESERVOIR, CONSTRUCTED FOR THE "NEW AGRICULTURE."

In accordance with friend Cole's instructions, I made my first two reservoirs, along the highest part of our garden, between five and six feet deep, and six feet in width. The main reservoir is about 150 feet long; but as the ground is not quite level, in order to get the bottom to a water-level we dug down six feet on the highest ground, and about four feet on the lowest. To avoid handling this great amount of earth more than once, we proceeded as follows: We made a wooden frame six feet wide and eight feet long. This frame was laid on the ground at the place of starting, and then with a spade we cut all around it. The frame was then moved away, and the earth dug out with spade and shovel and pick, and thrown on three sides of the excavation. After it was all dug out, stone were placed in, as shown in the cut, to the depth of 2½ feet. On top of the stone we threw tin scrap from our tin-shops, broken glass and crockery—any sort of rubbish we wanted to dispose of, to be found anywhere on the premises. Old tinware was also used to take the place of the stone; old stove-pipes and sheet iron—any thing that was lumbering up the premises, being sure to place it so the weight of the earth above would never crush it down into the water. After the tin scrap, etc., we put on scraps of leather, old boots and shoes; lastly, coarse manure for two or three inches. Now, instead of throwing the earth back into this pit from the sides, we took the outline frame used before, and made another excavation south of the first one, the dirt being thrown from the first to the north end and on the east and west sides. Perhaps I should explain, that our ground has ordinarily from six inches to a foot of vegetable mold on top. Underneath this is a subsoil of yellow clay. I was inclined to think that this yellow clay should be carried away; but friend Cole says not. Now, let A represent the bank of earth on the north side. The one foot of vegetable mold, or good dark-colored soil, was spaded out; but instead of throwing it out on the stone covering, we pitched it on A. When it was all off so as to leave nothing but yellow earth in the second pit, this yellow earth was pitched on to the manure covering the stones, throwing first a few inches of yellow earth, and then a few inches of manure, so that the contents of the pit above the stone was manure and this yellow subsoil, about half and half. Loads of manure had been previously piled on each side of the path of this reservoir. You will observe that the trench was carried along in this manner, putting the good soil on top of the banked earth at A.

Well, after this reservoir had been carried about 75 feet southward, it passed close beside one of the outbuildings belonging to the factory; but the covered reservoir was at such depth in the ground that the top of the stones was still a little lower than the bottom of the vault of this outbuilding; so you will see all that was needed was to make an inclined plane under the outbuilding so as to permit the contents to be easily washed by the water into the reservoir. When this was done, the garden soil was nicely banked all around this outbuilding, making it warm enough so a zero freeze would not at all affect the contents. Who has not been annoyed during zero weather by a freezing-up of the contents of these outbuildings? Perhaps I should here state, that during a very severe shower of rain, or when the snows melt in the winter, we have a flood of water coming on the west side of our garden. I have laid underdrains with large-sized tile repeatedly, but still quite a freshet sends a little flood down among our honey-plants and flowers. Well, before finishing up the piece of work I have been describing, we constructed open ditches on the west side of the garden, to connect with large-sized tile so as to empty all the water, from the west, under this outbuilding, so you see the effect of a rain will be to wash the contents into my large underground reservoir, where the roots of our plants and trees can help themselves. If you look at friend Cole's letter you will notice that in the last paragraph he suggests an arrangement whereby our poultry-houses, pig-sties, and even stables, may be so arranged as to allow the contents to either drop directly into one of these reservoirs, or so they can be washed in with very little pains. Liquid manure and all, is thus quickly and almost automatically sent to the fields to fertilize growing plants. Instead of laborious carting and teaming, and then more laborious plowing and harrowing to get these substances into the soil, the rains are taught to do this disagreeable and laborious work. May be you will think friend Cole and I are borrowing from our imagination somewhat; but I think every candid reasoner will allow that friend Cole has accomplished a great deal, any way, even if it should transpire that *all* he proposes to do may not be secured.

In connection with this matter of outbuildings, there is another thing I want to be excused for calling attention to. Many such buildings are so arranged, or made so loose with joints and cracks above and below, that in the winter time there is great danger of delicate people, women and children, taking cold by cold drafts and exposure. When it is nicely banked up as I have described, and made close and tight, no cold air can gain access anywhere, so as to make a draft dangerous to the health. Furthermore, if close-fitting lids are provided, and kept closed when not in use, no unpleasant or unhealthful odors can escape; and as it is all a dark cellar below, even a child would meet with no repulsive sight if the little one should happen to look into the dark depths. From motives of economy and durability I would by all means have the foundation of brick or stone; then bank it up and plant grapevines or other choice fruit around it. A Niagara grapevine is growing near the one belonging to our home.

After we get to the end of our underground reservoir we shall have one pit containing no earth, and there is none to put into it. But the dirt from the first pit lies where it was thrown out. This may be carted so as to fill up the last one, or you can spread it over the surface and fill the last with dirt taken from the surrounding soil. We meet the same thing in ordinary trenching for market gardening. Of course, where we put in as much manure as I have mentioned, the heap of dirt at A will be raised up much above the general level of the ground. I propose to let this lie until the frosts of winter work it up fine for use, and this morning, Jan. 12, the thermometer is 6 degrees below zero, so you see I am going to make this severe weather serve me. Our potatoes and apples are safe from the effects of the frost, in that new outdoor cellar I have mentioned a few pages back. Our poultry and bees and other stock have comfortable accommodations; we have a large factory at least tolerably warm by steam-pipes this brisk morning, so we can go on with our work in spite of the frost.

Of course, I do not know what we shall be able to raise over those reservoirs, and on the ground between them. We have placed them from 20 to 30 feet apart. We shall, as soon as spring opens, test them with strawberries, raspberries, celery, cabbages, etc., and we think it quite likely we shall be able to get splendid crops on a soil heavily manured for *two feet* or more in depth, with a reservoir of water underneath it all.

CHAPTER VIII.

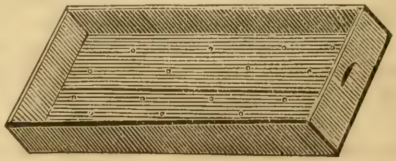
Whatsoever thy hand findeth to do, do it with thy might.—ECC. 9:10.

Now, friends, if you will pardon the digression which the advent of friend Cole's book has made necessary in our new book, we shall go on with "What to Do, and How to Be Happy while Doing It." The digression will, however, I hope, furnish many of you something to do; and if you are as happy while doing it as I have been during the past three or four weeks, I think the chapters which it occupies are right in place in our book. A good deal that I tell you how to do here I suppose will be done when you would not otherwise do much of any thing else. In fact, this book is written particularly for people who have spare hours, and times when they have not much to do.

Some of the things I describe cost considerable money, I know; but I do not intend to recommend things that will not ultimately save money in the end, or save health, which is more than money. It is now toward the middle of January, and the weather is such that many of you doubtless think ordinarily there is not much to be done outdoors. However, we should try to improve all weather suitable for outdoor work; and when you can not work outdoors, let us work inside. As a general thing, I believe it pays to have one or more thermometers about your premises. By watching the thermometers you can tell how the weather is turning, and make your plans accordingly. A thermometer is also needed in the cellar, to tell when your fruit and vegetables are at the proper temperature. By opening the doors and windows you can keep many things about as safely as they are kept in the cold-storage rooms; that is, keep them just as near freezing as you can, and not have them freeze. Apples will frequently begin to rot badly during mild spells in the winter, where, by the simple use of a thermometer, and keeping the matter in mind so as to close the doors and windows, a cellar full of apples might have been kept entirely free from rot. Friend Terry takes advantage of this in keeping his seed potatoes so they will neither rot nor sprout. Suppose you decide by the thermometer that it is too cold, or the roads are too bad, or that there is nothing outdoors that can be done profitably; or may be it is after dark during these short winter days that you have unoccupied time on your hands—what shall we do? We will do this: Learn how to make seeds grow. Have you ever tried making things grow? Very likely you have. May be you are one of these people who can make every thing grow that you get your hands on. The chances are against it, however, because there are not many such people. You can learn how to do it, however, just as surely as you can learn the multiplication-table.

MAKING THINGS GROW.

If you haven't good seed, the first thing is to get some. If you have seeds of lettuce that have produced just such heads as you wanted in former years, use that. If you haven't, get a five-cent paper of one kind, or have different kinds, if you think proper. Last season I had *nineteen kinds of lettuce* growing in one bed, and the experiment was worth to me certainly all it cost. There is one advantage in commencing with seeds in the middle of January, because you can have them nicely tested indoors before it is time to work in the open air. May be you have only a window, or two or three windows, in which to raise plants. If you have a little greenhouse, cold frame, or hotbed, all the better; or if you have not these latter appliances, you can start the seeds before the window now, and get some sash and make preparations for them while they are getting larger. Whatever you do, economize your space and make use of every bit of sunshine. If you learn to use economy in managing a square yard of sunshine, you will be prepared to use economy when you get outdoors on an eighth of an acre, a whole acre, or many acres. It seems to me every farmer will be a better farmer for having at some time in his life had practice with a single square yard of earth, and tried to see how much he could make that yard produce. The first thing needed is boxes to hold your earth. I would have these boxes uniform, and all just alike, even if it does cost some time and trouble. Here is a picture of one of them.

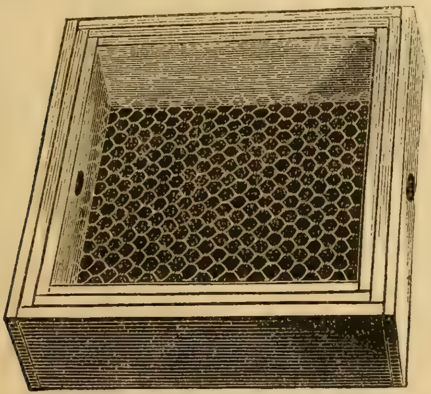


A BOX FOR RAISING PLANTS TO SET BEFORE THE WINDOW.

To have them light to handle I would have them made of ⅜ pine, except the ends, which are made ⅝. The bottom is made of two pieces—not necessarily, but they are better so, because then each piece can be nailed into the side-boards, making the box strong, even though the bottom is all thin stuff. For drainage, the two pieces that form the bottom should be, say, ¼ inch apart. Then I would have a dozen ⅜ holes bored as shown in the cut. The box is 3½ feet long, 15 inches wide, and 4½ inches deep, outside measurements. Should you make a little greenhouse or cold frame, these boxes will be just right to set on the benches; or if you have the benches filled with earth, 3½ feet is about as far as you can reach over while standing in the path. More of this anon.

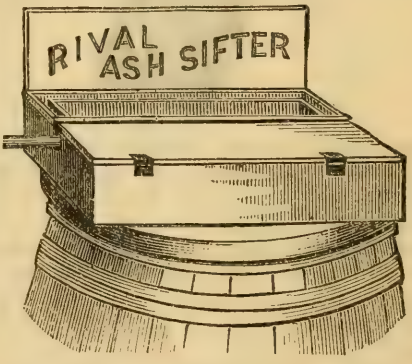
SOIL TO PUT IN THE BOXES.

Much depends upon this, and the basis of it should be good well-rotted stable manure. I would rather have this than bone dust, guano, phosphate, or any other fertilizer. The best thing to mix with the stable manure I know of is rotted sods, but you can not always get these handy. Perhaps the best you can do will be to get some soil from the richest part of your garden. If your manure and garden soil are both frozen up it will give you an appetite to dig out enough to fill a box or two so as to get things started. You can thaw them out near the fire, or perhaps in the cellar. If you can get hold of some peat from a peat-swamp, you want some of that also. A heap of it in the cellar will be nice to have. You will remember how much Mr. Terry and other prominent agricultural writers have said in favor of fine tilth. If they can afford to plow and harrow *acres* so as to get it worked up fine, *we* can afford to take some pains with a little box full. The nicest way to get soil for plants in a fine state of subdivision, and at the same time get out all the sticks, stones, trash, etc., is to sift it. By all means, *freeze* it thoroughly, and then thaw it before you undertake to sift it. If you have not a good sieve suitable for the purpose, you can purchase one for about ten cents. We give a picture of three such sieves in the figure below.



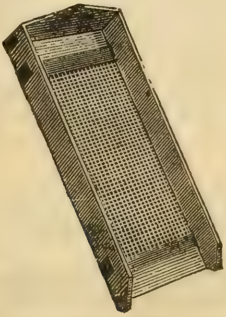
SQUARE SIEVES FOR GARDENERS' USE.

Sift the stable manure if you can. If you can't, break it up into little bits. If it is old enough and rotted enough, so you can break it up and make it go through the sieve, it is just what you want; but if it is the kind that is black, and can be cut up, something like cheese (beg pardon for the illustration), it will do very well, for it will soon work up fine by use. While speaking of the sieves, I wish to say that such sieves are very handy for many purposes in the household. The ashes from your stove, if you burn wood, make an excellent fertilizer, and are to be saved very carefully. Before using them they should be sifted, and every thing that does not go through the sieve should go back into the fire. Coal ashes are sometimes treated in the same way, and the coal and coke you get out of the ashes to burn over again will well repay you for the time and trouble. Some wood ashes will be tiptop to put in your seed-bed, but you do not want more than a teacupful in a whole box of earth, and it must be very thoroughly mixed with soil by stirring it up and sifting it in. Your muck, or peat, also wants sifting; and where you have much sifting to do, soil, peat, ashes, etc., a regular ash-sifter to put over a barrel is a nice and cleanly arrangement. We give a picture of the ash-sifter below.



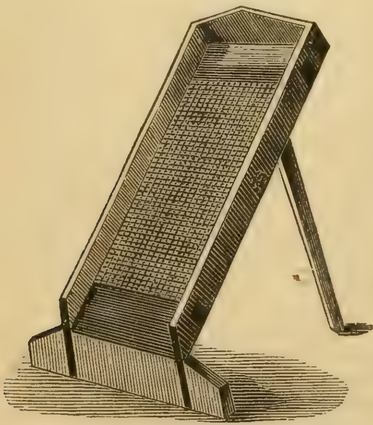
You will notice that this sifter sifts your material nicely in a barrel. The lids shut down so that the ashes do not fly around the room and make your wife trouble. Such a machine costs about $1.25. If your soil is a clay soil, a mixture of sand is excellent for raising most vegetables. Radishes, for instance, grow nicer in sand or gravel, properly enriched, than almost any thing else. While speaking of sand I want to say that a sand-sieve is a splendid thing for sifting soil, peat, etc., especially where you have enough to do to take it outdoors. We use one such as is shown in the cut on next page.

They are also nice for sifting gravel for making gravel walks; also for sifting coal. One end is to be propped up at such an angle that, when you shovel the dirt, sand, or gravel, against the upper end, it slides down of itself. An economical way to use such a machine is to have two wheelbarrows side by side. Stand the screen so it rests in one wheelbarrow, sloping over the other. Pitch your mellow soil against the top end; the fine dirt goes through into the wheelbarrow below, while the coarse particles run down into the other wheelbarrow; then wheel the contents of each where you want it. Such a screen, or sieve, made of galvanized iron wire, so it can not rust, costs $5.00. It is 2 feet wide by 5½ feet long. They are used by masons, coal-dealers, and for many other purposes. If you live near a large city, you can often get the sweepings from the pavements, which Peter Henderson considers worth as much as barnyard manure. Run it through the sieve as above, and it is ready for business. Below is a cut of this last sifter.



SCREEN FOR COAL, SAND, ASHES, OR GARDEN SOIL.

Where you are going over a still larger extent of ground, and wish to get out sticks, stones, hard lumps, etc., but don't care about being so very particular, a still coarser screen is sometimes handy—such a one as dealers in coal use largely. A very handy one is shown below, with a foot-board and leg.



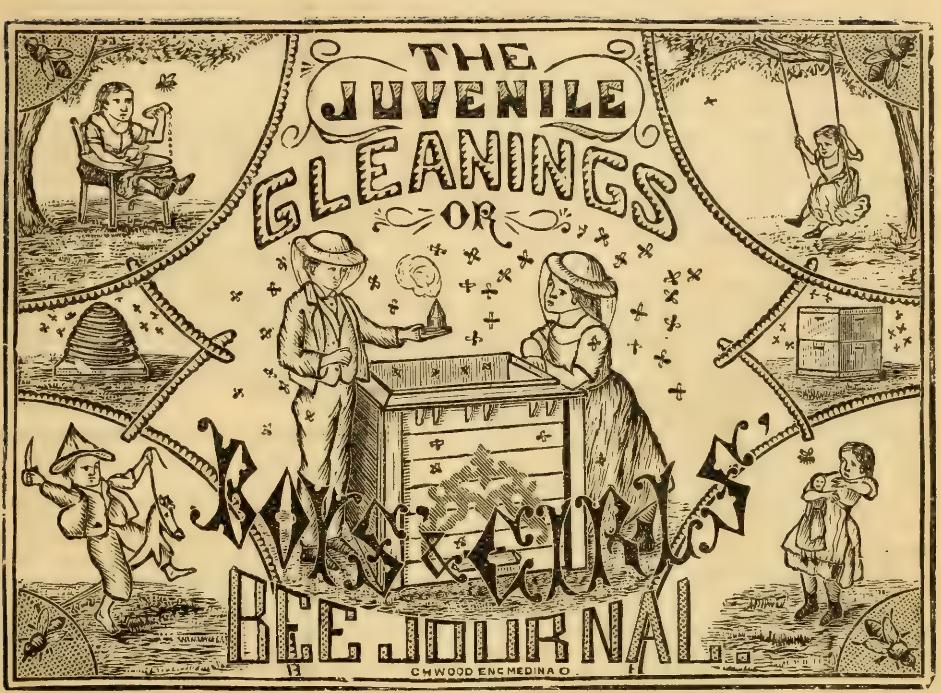
COAL-SCREEN, TO BE USED FOR GARDENING PURPOSES.

This last machine is the one we shall use for preparing the soil over our covered reservoirs, described in Chapter VII. We pass the surface soil through this to make it fine, and to get out all the stones and other impediments to high culture. This *debris* which is screened out is used for filling the overflow filters, which permit the water to flow from one reservoir to the other.

Now as we have discussed soils and sieves, let us sow our seeds. As no plan has given us such success as the one described by Peter Henderson, in his book entitled Garden and Farm Topics, we give it in his own words here:

> Since 1886 we have made many important improvements in culture under glass, particularly in the methods in use in starting plants of cabbage, cauliflower, and lettuce. The old plan of sowing the seeds for these plants in the open air in Sept., and pricking them off in Oct., and keeping them in cold frames, is gradually giving way to sowing in green houses or hotbeds in February, and pricking out in March, which gives a far healthier and nearly as strong a plant, by the first week in April, as those that have been wintered over. The past season we raised nearly half a million of plants in this manner, which we sold at $5.00 per thousand, a price as profitable to us as the plants were satisfactory to the buyers. We sowed the seed the first week in February, in one of our greenhouse benches, so thick that they stood twenty plants to the square inch. These we began to thin out, to prick in hotbeds, just as the first rough leaf appeared, placing a thousand plants in a 3×6 sash.
>
> The handling of that quantity was a big job, but I doubt if one plant in a thousand failed, owing, I think, to a plan we used in preparing the bed on the greenhouse bench for the seeds; a plan that I think well worthy of imitation in preparing a bed for seeds, that have to be transplanted, of any kind, whether outside or under glass. We used only two inches in depth of "soil" for our seed-bed, which was made up as follows: For the first layer, about an inch, we used a good friable loam, run through a half-inch sieve. This was patted down with a spade, and made perfectly level and moderately firm. On this was spread about one-fourth of an inch of sphagnum (moss from the swamps), which had been dried and run through a sieve nearly as fine as mosquito wire, so that it was of the condition of fine sawdust. On top of the moss the ordinary soil was again strewn, to a depth of about three-fourths of an inch. This being leveled, the seed were sown very thickly, and then pressed into the soil with a smooth board. On this the fine moss was again sifted, thick enough to cover the seed only. The bed was then freely watered with a fine rose, and in a week every seed that had life in it was a plant.
>
> Now, this seems a long story to tell about what most consider a very simple operation, but it is necessary to give these details for a thorough understanding of the advantages of the method. When the seeds of most plants germinate, where they are thickly sown, the stem strikes down into the soil, the roots forming a tap-root with few fibers, unless arrested by something. Here comes the value of our one-fourth of an inch of sifted moss, placed three-quarters of an inch from the top. As soon as the rootlets touch the moss they ramify, in all directions, so that when a bunch of seedlings is lifted up and pulled apart, there is a mass of rootlets, to which the moss, less or more, adheres, attached to each. To the practical gardener, the advantage of this is obvious: the tiny seedling has at the start a mass of rootlets ready to work, which strike into the soil at once.
>
> The advantage of the moss covering of the seed is not so apparent, in the matter of a free germinating seed, such as cabbage, as in many others; but in many families of plants it is of the greatest value. For example, last November I took two lots of 10,000 seeds of *Centaurea candida* (one of the dusty-miller plants so much used for ribbon lines); both were sown on the same day, and exactly in the same manner, in boxes two inches deep filled with soil; but the one lot was covered with the sifted moss, and the other with fine soil. From the moss-covered lot I got over 9000 fine plants, while from that covered by soil only about 3000. The same results were shown in a large lot of seeds of the now famous climbing plant *Ampelopsis Veitchii*, and in the finer varieties of clematis. The dust from cocoa-nut fiber will answer the purpose even better than sifted moss, when it can be obtained. The reason is plain: the thin layer of sifted moss never bakes or hardens, holding just the right degree of moisture, and has less tendency to generate damp or fungus than any substance that I know of.

To be continued Feb. 15, 1886.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

Thou shalt not covet . . . . any thing that is thy neighbor's.—Ex. 20:17.

THIS subject of our neighbors has been brought prominently to my mind this morning by contemplating the Bohemian-oat swindle. In order to bring the subject before the friends, I quote the following from the *Farm and Fireside* of Jan. 1, 1886:

> Originating in northeastern Ohio, the Bohemian-oats scheme has spread like a poisonous fungus throughout this and most of the neighboring States, until it promises to permeate the length and breadth of the land. Certainly it would seem that no man of average intelligence could fail to see at a glance that somebody must eventually be a heavy loser by this scheme, even were those primarily engaged in it to fulfill their contracts; yet we have been astounded to hear mentioned in connection with it the names of men who had previously stood above reproach. This scheme has frequently been denounced as a swindle by the local press where it has appeared, but these denunciations have not prevented its reappearance in some distant quarter. Moreover, it has been quite difficult to get at the real plan upon which the scheme was being worked, and consequently the sharpers operating it, by the aid of a few stool-pigeons employed in each new neighborhood, have been able to work it over and over again. In this and the preceding issues of *Farm and Fireside* we have presented the most complete expose of this business we have yet seen. The reader who follows this expose carefully will see that the scheme is most cunningly devised to feed upon the greed of unprincipled tricksters on the one hand, and the credulity of ignorance on the other; and that unless checked it will bring upon the farmers of the country an enormous load of distress.

Even the little boys and girls, I think, can understand this matter if I try to make it plain, and perhaps many of them have heard the matter talked over in their families already. When the agricultural papers came out and announced that these oats could be bought for 75 cents or $1.00 a bushel, while this association was calling them worth $5.00, and in some cases $10.00 a bushel, it would seem that any child should understand that there was something wrong; but men who have before been considered good men, and some of them, perhaps, professors of religion, have still pushed ahead, made crazy and greedy by speculation. Some of them have even gone so far as to say, "I don't care if the oats *are* worth only 75 cts. or $1.00 a bushel; so long as these men give me my $5.00 a bushel, what does it matter?"

When anybody goes to reasoning in that way, you may be sure he is in a bad state of mind. We all of us get into bad states of mind occasionally—that is, the most of us do. Just yesterday morning Huber was cross and peevish. I reasoned with him a little, but the "cross" would not go away. He saw the force of my reasoning, and he knew he ought to be a good boy; but he told the truth, even if he was bad. In reply to my question, he said, "No! bad boy." I presume he reasoned as I often have, in regard to this element of evil that sometimes gets such firm hold of us. He did not say so, but I thought by his looks he was thinking something this way: "Papa, I know I am a bad boy; but I am trying to be good, and the good won't come. I do not know what it is that makes me bad." Pretty soon he came to the point where he might have honestly said, "I am sorry I am bad." Just one step more, and he could think, "I want to be good." When he got to that point he was out of the filthy mire. A smile began to show itself dimly around the corners of his mouth, and finally out it came, and we had a bright good boy at the breakfast-table once more. Now, then, children, for the application: When these men get crazy for money gotten without any fair equivalent, they say, "I do not care if the oats *can* be bought for a dollar a bushel; if I can get five dollars for mine, and have a sure thing of it, I am not going to bother myself any further about it."

I will tell you, my little friends, how they get the five dollars for what is worth only one dollar. A whole neighborhood gets crazy over this new speculation, or new species of gambling, if you choose. A smooth-tongued agent manages, by hook or crook, to get a few good men among them, usually by telling them that it will not cost them any thing, and arranging it so they can't possibly lose; then after awhile he slips out of it and lets the responsibility of it rest on the members of the association. Men of capital, and usually those who are posted in all the tricks of the business, slip out through loop-holes previously arranged expressly for them. Men who are comparatively poor, who have mortgages on their small farms, perhaps, and who are, may be, not quite as well posted as their neighbors, in the end have to shoulder the responsibility; in other words, they have to make up the difference between one dollar a bushel and five dollars a bushel, so the scheme is one to rob poor men, and to put the proceeds into the pockets of the richer ones. What shall we do to avoid such traps and tricks? Why, keep entirely out of them, and keep out of temptation's way; don't even *talk* with these kid-gloved, smooth-tongued speculators. Shun even the appearance of evil. If your heart is full of love for God and love for your fellow-men, especially your neighbors, there will surely be no danger of your getting into any such scheme. Remember the commandment, "Thou shalt not covet . . . . any thing that is thy neighbor's."

In connection with this subject I wish the friends, young and old, would turn to the first chapter of Proverbs, and read from the 10th to the 20th verse. It would almost seem as if Solomon had the Bohemian-oat business in mind when he wrote these verses. If you know any Christians who have any thing to do with this awful piece of villainy, just ask them to read these verses.

Now, lest you think I am too severe from what I have said, I want to make two other extracts from the *Farm and Fireside*, furnished by Mr. Henry Talcott, a member of the State Board of Agriculture, and a banker, and a prominent citizen of Ashtabula County, this State. He replies to the editors as follows:

You have got hold of the elephant, exactly. We had one Henry L. Bacon to come here four years ago as the head-center of this business. I wrote up the business for our papers instantly, and tried my best to prevent our farmers from being swindled. I told Bacon, when he brought his first notes to my bank to try to get them cashed, that he ought to be put in the penitentiary at once, and, thank God, he is there now for seven years—sent from the Summit County courts in Akron. He made a big run of the business first, however. Our farmers were a set of fools over the business, and now lots of lawsuits are on hand in our courts as the result of it, and many good people are in trouble. I hope you will push this light before the farmers as fast as you can. HENRY TALCOTT.

And this:

As a rule, the Bohemian oats will not yield over two-thirds as many pounds of grain per acre as the Norway, Russian, or Welcome oats. I know this, and do not guess at it, because I have given all these kinds a most systematic and thorough trial. The Bohemian-oat swindle has been here four years, and I have seen and know the bottom facts.

A number of lawsuits, grown out of this business, are now on our court dockets, and so far the swindlers get beaten every time under the equity provision of the common law. No man can collect pay for a Bohemian-oat note, because the giver does not get value received, and the only way they attempt to do it here is to sell the notes, before due, to a third party, who can set up the claim of innocent purchasers. Fifty cents per bushel is all our courts have yet allowed as the value of the oats.

Ashtabula, O. HENRY TALCOTT.

LETTER FROM MRS. HARRISON.

SOMETHING ABOUT THE DETROIT CONVENTION.

CHILDREN:—I didn't see any of you at the convention at Detroit. Would you like to know who was there? I know you would, because I'm a child myself, only a little bit old. First and foremost was father Langstroth, cane in hand, his face beaming with happiness and good will to all. He said he had not made any money out of his invention; but whenever he met a bee-keeper he was warmly grasped by the hand, which was worth more to him than money. He told a friend, that whenever he needed any thing he told the *Father* about it, and he sent it. Father Langstroth used to preach; but he got sick, and could not do it any more, and he told his wife, "If I could only invent a hive, so that every poor family could have honey all the time, I should be happy," and so he is happy; and not only happy, but beloved, and first in the affections of bee-keepers. Strong men shed tears as they watched him leave the room to take the cars for his home at Oxford, Ohio.

Mr. Root, the president of the convention, married a daughter of Mr. Quinby. Now, I always feel as though Mr. Langstroth were the father, and Mr. Quinby the father-in-law of bee culture. If I tell you a secret about Mr. Root you won't tell, will you? He gets lots and lots of honey from his bees, and won't tell how he does it. Never mind; we'll find out ourselves, and we'll feel so good over it. When I went to school I never liked to have any one do a hard example for me; for if I did it alone I could snap my fingers and cry out, "I've got it! hurrah!" You have all heard of Mr. Jones, of Canada, haven't you? He went to Italy, Cyprus, and Palestine, after bees, and raised queens on islands a long way from shore. He is a good talker, and, Englishman like, he brags a dood deal; but nobody cared until he had the impudence to start a bee-journal in the queen's domain, just as if the United States could not furnish enough for all North America and the rest of the world besides.

The second day of the convention was Mr. Root's birthday (Uncle Amos). You all like presents on your birthday, don't you? Mr. Root got one—a nice book. He was surprised. Some thought, that because a woman was on the committee she would tell; but she didn't, and so he hadn't any speech ready, and could only say, "God bless you, my friends; God bless you."

Professor Cook was feeling first rate—was in the best of humor. He looks as if he lived on apples, pears, peaches, strawberries and cream, with oatmeal and graham bread, and never tasted of pon-horse, pigs' feet, sausage, head-cheese, and mince pies. I tell you, it makes a pile of difference what a man is made of.

I could talk to you by the hour of what I saw at the convention, but I am afraid of the editor's gavel, "Out of order!" **Mrs. L. Harrison.**

Peoria, Ill.

Now, my good friend Mrs. H., I am going to add to the list of people who were there. In the first place, you were there yourself, and it always does me good to see your genial face when I get to any of the bee-conventions. Miss Lettie Wilkins was also there, and quite a goodly number of ladies whose names I have forgotten. And now you have told about what *we* did, I am going to tell the children that, when I had to leave to take the train, you said you wanted to throw your old shoes after me for good luck, and I remembered it too. You say that President Root wouldn't tell how he got such lots and lots of honey. Perhaps the reason why is because he has already told it in his excellent book, Quinby's New Bee-Keeping, and he does not want to be telling it over and over.

GOOD REPORT FROM A JUVENILE.

ALSO A KIND WORD FOR OUR FRIEND OLIVER FOSTER.

I WILL send our report for 1885. My brother Herbert started in the spring with a stand of hybrids. He bought a nucleus (one pound of bees), with tested queen, of Oliver Foster (and he is a square man to deal with). We got it May 21. In all my brother obtained 205 lbs. of comb honey, of which 70 lbs. came from the nucleus, besides moving the nucleus when they were strong in bees, and letting the field-bees go to make another swarm. He sold all his honey at from 15 to 17½ cts. per lb., giving him $31.50 for his honey. Herbert has now 3 stands, strong in bees and honey. The rest of us had 3 stands in the spring, and increased to 8. We bought two more nuclei of friend Foster, after July 15. They did well, and mine made 20 lbs. of surplus in sections, besides being full below. All together we sold 535 lbs. of comb honey, selling the most of it for 15 cts. per lb. We have 13 hives in all. They are packed for winter on their summer stands, with plenty of honey in the hives, and about 200 lbs. in frames, to feed in the spring. We have the A B C book, and could not get along without Gleanings. We keep our bees mostly in the Kretchmer Simplicity hive. **Florence Green.**

Emerson, Iowa, Jan. 5, 1886.

Friend Florence, your report is a real good one. And so a nucleus, bought after July 15, gave you 20 lbs. of comb honey, did it? Now, this 20 lbs. of comb honey probably paid the cost of the nucleus, and you have the bees and stores left. If we could all do as well as that, bee culture would be fun, wouldn't it? We are glad, also, to know that friend Foster succeeds so well in pleasing all his customers.

CHARLIE'S EXPERIENCE WITH BEES.

WHY DO BEES RUSH TO THE FIELDS WHEN FED IN THE HIVE?

MR. ROOT:—This winter has been a mild one so far. The thermometer has ranged between 30° and 40° nearly every day, and many nights it has not got down to freezing. The bees have had several flights during December, and they also flew on New Year's day. The way we prepared our bees for winter was to fill the upper story of the hive with soft dry oat chaff thrown in loosely. Most of our swarms gathered enough honey to winter on, but some of them had to be fed in the fall. To avoid robbers we fed at night. If we fed them before it was really dark, sometimes one of the swarms that we fed would rush out in great clouds, roar about through the air, come into the house, and some of them in their excitement would go out to the buckwheat flowers, although it would be nearly dark. They were very cross at these times. They would return at dark, and in the morning would be as peaceful and quiet as if nothing of the kind had happened. While doing this, not a bee would be moving about the other hives, so it could not be robbing. I think that a bee may have stolen a load from the vessel containing syrup when it was sometimes set out to cool, for often I saw a robber at the syrup. When he emptied his load and again started forth, part of the swarm followed him. Do you think this was the cause of it? From this we took warning not to put syrup within the robbers' reach any more. We also fed some in December when the days were warm enough for the bees to fly.

MOVING A WEAK COLONY THAT HAS BEEN ROBBING, A COUPLE OF MILES AWAY.

Last spring we had a box hive that got so weak that only a small handful of bees remained, and they could scarcely be seen at all, away back among the combs. The robbers bothered it so that we at last moved it a couple of miles away. This was during locust bloom, and before basswood blossomed it had built up to a heavy swarm. We had another swarm a little larger than this one that built up and cast two swarms.

THE ADVANCE GUARD THAT PRECEDES THE SWARM; PUTTING A LARGE SWARM INTO A SMALL HIVE.

In swarming time last summer a runaway swarm came past me, in which I noticed that a little band of bees were going along in advance, followed by the main body. In 1884 we put a large swarm into a hive that was too small for it. It absconded; and while attempting to get them into another hive the queen must have accidentally got killed, for the swarm attempted to return to the hive that they absconded from, and were nearly all killed, because they got into another hive near by containing bees. They rushed through the hive and into the air with sad, wailing sounds, clearly indicating trouble and distress, and that trouble was undoubtedly the loss of their queen.

A CAUTION IN REGARD TO JARRING HIVES UNNECESSARILY.

Will bees consume honey wastefully when jarred? In the fall, one of our swarms was jarred so that it tore open some of its honey, and filled themselves with it, and every time for some time after that, that I looked into them (although I would not jar them at all), they would seem excited, and would dive into the cells. When disturbed some of the bees make quick, sharp sounds which I can hear by pressing my ear to the side of the hive. On warm days this is kept up all day, and on cold ones for a few minutes only. They also make this sound while at work on a feeder. Will the slight jarring that *will* sometimes be made cause them to wastefully eat honey? and are they any more liable to do so in winter than in summer? Are hybrids any more apt to do it than Italians?

CHARLIE L. GREENFIELD, age 14.
Somerville, Ohio, Jan. 2, 1886.

Friend Charlie, you have given us some most valuable facts. You have also called attention to the other strange phenomenon connected with bees. We have placed to your credit on our ledger one dollar, and we hope you will be able to give us more such items from actual experience. Your letter plainly indicates that you have been among the bees, and that you are a thinking boy. In regard to the bees starting out for the buckwheat when you fed them, I have noticed the same thing. They had doubtless been at work on the buckwheat in the fore part of the day; and as they had scoured the country in the afternoon, they knew pretty well that the buckwheat was the only source of honey; so when their comrades came in laden from the feeders, they concluded, according to the best bee-sense they possessed, that the buckwheat must have taken a sudden freak of yielding honey at dusk instead of dawn, so off they put for the buckwheat field. You see, they jumped at conclusions just as boys and girls do sometimes. In the A B C book I have mentioned feeding a colony one evening that had been getting honey during the day time out of the honey-house, because somebody had left the door open. Well, as soon as a few bees got loaded up from my feeder, and walked leisurely into the hive, a regular stampede occurred. The bees just poured out of that hive, flew in my face, and buzzed past me and put for that honey-house door. They thought somebody had left the door open again; at least they could not think of any other place from which their comrades had obtained such loads in so short a time. Now, there is a valuable point indicated here. Bees understand each other a great deal as we do, only they do not have a language as we do. Had their comrades been able to tell them, "Hurrah, boys! the boss has just put a saucerful of feed right on the alighting-board for us," the bees in the hive would have tumbled pell-mell to see who would get to the saucer first. But you see they did not tell them any thing. They only came in with great loads, and made haste to dump it into the cells. Perhaps they buzzed their wings and wiggled their bodies as they do when the honey first comes from the dandelions and apple-bloom.—A great many times the best thing to do with a hive that has been almost used up by robbers is to carry it a couple of miles away.

What you saw in front of that swarm was what the bee-books have termed the "advance guard" that leads the swarm to the particular tree selected by this same scouting party.—Bees will consume honey wastefully, I think, when they are stirred up during a dearth of honey, or when the weather is too cold. They are more liable to do it in winter; and cross hybrids, or cross bees of any race, are more liable to do it than pure Italians or gentle bees.

HOW OLIVER FOSTER PUTS UP AND SHIPS HIS BEES.

THE CALITHUMPIAN BEES.

BACK a few numbers of GLEANINGS you said that you would like to have a report of the way in which Mr. Oliver Foster puts up his bees to make such successful shipments. Pa got 1¼ lbs. of bees, a comb of brood, and a tested queen from Mr. Foster last May. They were in a light case 4 inches wide, and deep and long enough to hold a Simplicity frame, a wire nail driven down through the ends of the frame and into the case, the nail sticking up just far enough to get the claws of the hammer under to pull it out easily; then a piece of old tough brood comb was wedged between the comb and case to hold all steady; a wire cloth was tacked over the top, two screws in each side of case, and wire fastened to them, and passing over the top for a handle.

They came through (800 miles) in splendid condition. They were three days and four nights in the case. We took them out of the case and got them in the hive in short order, and in a few minutes they were carrying in pollen from fruit-bloom for all they were worth. Pa said they just took the oath of allegiance, and went right to work like good and loyal subjects of "Her Majesty."

I have something funny to tell you about No. 16, the hive with the Foster queen. Bennie A——, a boy 14 years old, who had never seen Italians, was standing in front of the hive watching the bees, when he asked, "Are these Calithumpian bees?" You see he could not think of "Italians," so he did the best he could. Such a laugh as we all had, and pa laughed until he almost cried. Of course, you know what we call Calithumpian. Those fellows who parade in the processions on the 24th of May and other holidays, dressed in ridiculous costumes and masks. We have dubbed that hive the Calithumpian, ever since. It is too bad, too, to give them such afunny name, for they have done wellhis summer, and pa says that is one of the best queens he has. Our bees are nearly all in sawdust hives, with sawdust cushions in the section-case on top.

I have a brother, Roy, 8 years old, and a sister, Ruby, 5 years. We are all interested in the bees. Isn't it a funny little fellow, who knows every thing just as soon as he is born, as a bee does?

Now, Mr. Root, I have tried to write this just as the printers want it, on one side of the paper, and all that. You see my pa writes for the county paper. If you think it would do for GLEANINGS, I will write and tell how we made an aquarium, with a pretty fountain in the middle, for our dining-room.

SPERRY DUNN.
Ridgeway, Ont., Can.

Very good, Sperry; but we wanted to know how Mr. Foster puts up bees without any brood or combs. The package you got was a one-frame nucleus, which is all right, but it takes a comb of brood and honey out of the hives every time he sells a pound of bees.

JUVENILE·DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

IS it not a little strange why young birds should leave their cosy nests? why bees swarm, and why grown-up young folks should abscond and leave the old house with its fond recollections? Yet it is not so *very* strange after all; at any rate that *first* swarm from the "Root Bee-Hive" thinks so! Yes, they have recently been visiting New York — the great metropolis where the busy hum of busy life prevails. As the parent stock has said, it seems a wonder that some one does not get run over. Amid such a hum-drum, rattle and roar, ears are no surety against impending danger, and when crossing the street you have to look several ways at once, if that be possible, or you may get knocked down by a cart-wheel or a horse tugging at a street-car. The streets of Cleveland, Detroit, and Chicago, where there are no elevated railways, bear little comparison to those of New York, in the amount of noise and seeming confusion.

We visited many different places which you may have read of, or, possibly, have seen, such as the Brooklyn Bridge, from whose height we see in the distance Hell Gate, of which we have read so much of late; Central Park, a wonder in itself, occupying a vast domain of rocky land in the heart of the city; a Japanese village, modeled after those seen in the native country, and where all the various arts are represented; the Eden Musee and many other places, to say nothing of the various streets which are celebrated in themselves.

As these things are all quite familiar, or have been fully described in some of our best magazines, suppose, little folks, we take a boat-ride in N. Y. Bay, our point of destination being Staten Island. As we start we can begin to form an idea of the size of the Bridge as seen on our left. Yonder is Govenor's Island, upon which is situated an old fort. Further on to the right as we glide along, is the pedestal upon which is to be placed the Goddess of Liberty, of which we have read so much. All along our course are tugs, yachts, and sail vessels. Here is a steamer just coming in from the ocean; there is one just going out to sea. Thus the water in the bay is a fair sample of the life seen upon the streets. Pursuing our course a little further we finally arrive at Staten Island. From this the old Commodore Vanderbilt formerly ran his ferries. On landing, after a long walk we arrived at Fort Wadsworth, at the upper end of the island, and just opposite the Narrows. From this point we see dimly the ocean, and across the Narrows two other forts—the names of which we do not know. As we look at these vast masses of earthworks like mountains, and the solid walls of masonry, with huge guns mounted here and there, as if about to sweep every thing on the water, we feel like exclaiming, "Woe unto you foreign nations that dare to invade this harbor." A little inquiry, however, reveals the fact, that these guns are of but little service now, being relics of past wars. The ironclads of to-day would pass these forts unharmed. Nothing short of a torpedo, or a cable stretched across the Narrows, could prevent them going down. Neither would the stone walls offer any resistance to the heavy breech-loading rifled cannon. Wise men are asking the question why Uncle Sam does not build a navy and refit these forts, thus rendering ourselves more secure from invasion. I suspect Uncle Sam thinks there are other things of vastly more importance. Our resources are almost endless, and if any one can put himself in fighting trim on short notice, it's Uncle Sam. More than all, "It is not by might nor by power, but by my Spirit," saith the Lord.

Well, well! my little (?) letter is already too long and I'll have to stop short right here. Perhaps you inquire whether the "better half" was along. I reply, that said "half" *was* on hand, and really tired *me* out walking.

ERNEST.

BEES, HICKORYNUTS, ETC.

We are wintering three stands of bees. We have two packed in sawdust, and one in the cellar. We extracted 100 lbs. of honey last season. Last year was a good year for bees here, but there was no sale for honey. Last fall was a good year for hickorynuts. My brother and I gathered about three bushels.

ALBERT MCCURDY.

Trafalgar, Can., Dec. 27, 1885.

FIVE CENTS FOR SEEING THE FIRST SWARM.

My pa has some bees, and so has my grandpa. Last summer we little ones had to watch them at swarming time; the one who saw the first swarm come out got five cents. I go to day-school, and to Sunday-school. I had a nice piece to speak the evening before Christmas.

FREDDIE A. LAROSH, age 8.

Pekin, Ill., Dec. 27, 1885.

FROM 6 TO 12, AND 465 LBS. OF HONEY.

Pa took the first premium on Italians and black bees, and extracted honey, and second on rabbits, at our county fair. We made a fish-pond this fall, and have now made applications to the U. S. Fish

Commissioner for carp. Pa wants to know if the fish that he gets this winter will spawn next summer. We took 465 lbs. of honey last summer from 6 colonies, spring count, and increased to 12 and sold three. **JAMES SHENEMAN.**

Pharisburg, Ohio.

No, James, the fish the Commissioner sent you this fall will not spawn next season unless they send out larger ones than any I have seen coming from the various State hatcheries.

ANOTHER BEE LIVED 19 HOURS AFTER STINGING.

I let a bee sting me at 1:30 o' clock P. M. Wednesday, and he died at 8:30 A. M. Thursday. He lived 19 hours. Our bees are wintering nicely. I have 4 of my own. I hived our bees last summer. My brother got 3000 lbs. of honey this year. He has 100 swarms. He ventilates the cellar by a stovepipe from the sitting-room stove, and an opening in the cellar wall, to let the air from outdoors come into the cellar. **HERBERT HUTCHINS**, age 13.

Massena, N. Y., Jan. 1, 1885.

STINGING LIZARDS.

I am a boy 14 years old, and I like bees. We have 14 hives. We had them Italianized last spring, and lost only 2 queens out of the 14. Isn't that pretty well for beginners? There are a good many bees around here. Bee-stings do not hurt me. We have sheep and I like them too. There are lots of "stinging lizards" here. The winter is very late here. Some of the trees have leaves on them yet. There are a great many wild flowers in this country, and "bucking ponies" too. **EUGENE FOWLER.**

Davilla, Texas, Dec. 8, 1885.

SAMMIE TELLS HOW THE BEES CLUSTERED UPON THE GROUND.

My papa keeps 23 hives. He commenced with one swarm. I will tell you what a time my papa had to save them. One bright sunny day last spring the bees came out to take a fly. They flew all around the yard, and when my ma went out in the evening to feed the chickens, she happened to see that the bees that were having such a nice fly were all lying on the ground. So my ma took a large crock and picked them all up and brought them by the stove, and they soon commenced to fly. It was then about five o'clock, and a little later the bees were all on the window. So my ma then sent to have papa come home and see to them. My papa brought the hive in the kitchen, thinking the bees would go in; but instead of that, those that were in the hive came out on the window with the rest, so pa moved the hive up to the window and made some syrup of sugar, and filled some comb and laid it near the entrance, and then lighted the lantern and set it next to the comb, and the next morning when we got up the bees had all gone back into the hive. **SAMMIE SEITZ.**

Clarence, N. Y., Dec. 7, 1885.

Sammy, my impression is, from your description, that those bees were out of stores, and they came out on the ground because they were starved. I suppose you fed them enough to prevent any such mishap occurring again.

TWO HIVES KNOCKED OVER BY A BLIND HORSE.

My pa takes GLEANINGS, and thinks it is a most excellent paper, and I am taking quite an interest in reading the children's letters. I have finally been seized with the idea that I should like to try and write you a letter myself, but I suppose there is nothing that I can tell you about bees which you do not know already, except it be some little incidents that have fallen under my observation. There is a small boy living here. His father and mother are dead, and he has no other home, so pa and ma have given him a home with us. His name is Roy. When he first came here he did not know much about bees. Pa told him he must keep away from them or they would sting; but he did not seem to believe that those little flies could hurt him very much. So one day when he thought no one was seeing him, he went up to a hive, stuck his bare toes right into the entrance, and you may be sure that it did not take the bees very long to convince him that he had better keep away. One day this fall pa let the horses into the orchard to feed down the grass among the trees. One horse being blind, he wandered down among the hives and got stung. He then started to run; but not being able to see where he was going, he ran "kersmash" against a hive of bees, and sent it tumbling two or three times over. He turned short about, and ran right against another hive, and upset that also. No great damage was done. Through all this excitement pa got but one sting, and that was by a bee which was tangled in the horse's mane, where he took hold to lead him away. Pa takes four bee-papers and a number of other papers. I take the *Youth's Companion*. **LILLIE BULL**, age 13.

Seymour, Wis., Dec. 31, 1885.

Thank you, little friend. I can imagine the scene that ensued. Your father certainly did well to have only sting; but, how about the old horse? The number of accidents we have had of this kind, ought to warn us to be careful about allowing horses a chance to gain access to the apiary. **ERNEST.**

Lillie, there is a *big* moral to your little story. Never let a blind horse loose where it is possible for him to get at bee-hives. First, because the poor horse is made to suffer, possibly; second, we have no right to make the poor bees suffer, as they do when their hives are turned over; and third, the owner of the horse and bees suffers from the loss of his property, more or less.

"ITALIANS A GREAT DEAL BETTER THAN BLACKS."

We went into winter quarters with 68 colonies, stores rather light. Our apiary is well Italianized from Hayhurst's best Italian queens. We like them a great deal better than the blacks, on account of their gentleness and being so easy to handle. We use the Langstroth hive, four inches short. Should such a hive be called Simplicity, or not? If not, then what should it be called? Bees are not so plentiful in this vicinity as they were a year ago. But very little honey was made during the latter part of the season; in fact, the season has been poor for section honey. Father traded two hives with bees for a sulky for my brother to carry the mail with next summer. Father hires it carried through the winter. **CHARLIE H. BLACK**, age 9.

Ellis Mound, Ill., Dec. 14, 1885.

Friend Charlie, the name "Simplicity" hive has been given to it principally because of the simple way in which it is made—a box without top or bottom, and so made that any number can be tiered up, excluding wind and rain. A hive thus made I should call "Simplicity," no matter what dimensions the frames are.

A LITTLE GIRL WHOSE GRANDMA HAS 52 COLONIES; CANARY BIRDS.

I am staying with my grandma this winter, and going to school. My grandma has lots of bees. She has 52 colonies, 42 in the cellar and 10 outdoors, packed in leaves. I helped to rake the leaves to pack them in. The bees did not make much honey last season. We have a pair of nice canary birds, and they are just beginning to sing. I feed them every morning before I go to school.

NELLIE G. MARTIN, age 11.

Grandview, Iowa, Jan. 7, 1886.

Sister Maude has a canary bird something over a year old. You just ought to see how saucy he can be. Why, he seems to have a particular spite at me. When he sees me coming he will begin to scold and bristle up for a fight. How he does delight in pecking at my finger! and he can hurt too. Sometimes we put before him a looking-glass. Do you think he admires himself? not a bit of it. He thinks it is another bird, and the little "goose" will fight at his imaginary foe for nearly half an hour sometimes.

ERNEST.

FROM 2 TO 10, AND 60 LBS. OF HONEY; TIERING DOWNWARD.

My papa had two box hives of bees in the spring, and he transferred them as the A B C book said, and had very good luck. He increased to ten hives; got about 60 lbs. of honey from them, and made two nuclei. They did very well and papa fed them. I like to see the bees take their feed. Papa has packed eight of them in sawdust, as James Heddon says, and one as Cyula Linswik says, and one is not packed at all. The one that he packed as Cyula Linswik said, came out of a hole there was in between the chamber floor and the wall below, and papa sawed out a piece of the floor where they were, took out the bees and honey, and gave the honey to a man. Papa fed them with sugar syrup, and they are in good shape now. He tried some in two other houses, and could not get them. They built the comb down between the walls, and carried off some of the feed down there. Papa got stung once, trying to get them out of the house.

My brother wrote about papa buying the bees at auction. There was a man who bought a hive of bees when papa did, and put them up high under an old shed. They did not swarm, but built comb on the under side of the hive. They have been there two years now. Papa went to see them last summer. They had as much comb under the hive as they did in it. The comb under the hive was covered with bees, and the man said the bees covered the comb the fall before that way, and they wintered so last winter, only they kept working up into the hive through the winter, but did not all get up until spring.

BELLE M. WANZER, age 9.

Litchfield, Ct., Dec. 10, 1885.

MOVING BEES IN A SPRINGLESS WAGON OVER A ROUGH ROAD.

Mr. Ernest R. Root:—As you have charge of the juvenile department I shall address you instead of your father. As I was named after you, I think you will be more apt to give room to my report, if report you call it. I *suppose* I was named *after* you. I am eleven years old, so you will know whether I was named *after* you or not. My papa is taking GLEANINGS; and of the dozen papers he is taking, I am quite sure he likes it best. Pa is much interested in bees. The Rev. Granville Houchins, who is going to assist pa this year in bee-keeping, says pa has the bee-fever. Mr. Houchins has had much experience in keeping bees. He is a preacher and a school-teacher. I am going to school to him now. Mr. Houchins has an A B C book that your father wrote. Pa has "Quinby's New Bee-Keeping."

Mr. Houchins and pa bought 19 stands of bees out on Flat-Top Mountains, about 25 miles from here, and the way is *very* rough. The bees were in hollow-log gums. Now, the way they got the bees home is what I wish to report. They hired a heavy two-horse wagon, *without springs*, as they could not get one strong enough *with* springs to bear the bees up over the rough roads. The wagon-bed was not large enough to hold all the gums, so they took out the hind gate and laid some long plank in the bottom of the bed; then they turned the gums bottom up and tacked some old cloth on the bottom of the gums. They filled up the wagon-bed with the gums, after they had put some straw in first; what gums were left they put on the ends of the planks that were put in the bottom of the bed, and which were longer than the bed. Then they put some plank on the sides, and fastened all in with rope. Mr. Houchins thought the bees would smother, so he got an old wire fly-trap and cut it up in small pieces; then he cut some pieces out of the old cloth he had nailed on the mouth of the gums, the same size of his wire pieces; then he sewed the wire pieces over the hole. This was to give the bees fresh air.

AN ORIGINAL SUBSTITUTE FOR WIRE CLOTH.

He did not have wire enough, so he got a lot of goose-quills and cut the ends off so as to leave them hollow; then he cut beards on the quills, on each end, commencing in the middle; then he put the quills through the cloth. The beards would not allow the quills to work out. The quills were to give the little fellows breath. The bees were three days and nights on the road, owing to the bad roads, rainy weather, and high water. They all came through all right except one hive, and it only had two or three dozen dead bees in it. This was because it was not quite so well ventilated as the others.

ERNEST B. HUGHES.

Pipestem, W. Va., Dec. 10, 1885.

Your father must be one of the old original subscribers of GLEANINGS to have named you after me. Let me see: GLEANINGS is 13 years old this month—just the age of Blue Eyes, and I at the time was 10 years old. I declare, it makes me feel old, and yet I hope I shall never be too old to be young.—Your father certainly did well to move 19 swarms 25 miles over a rough mountain road on a wagon without springs.—You have a very original substitute for wire cloth, but in what respect do the bearded goose-quills assist in the ventilation? I should think that small holes through the cloth would answer equally well. Perhaps I do not "catch on" to the idea.

ERNEST.

HAS LOST ONLY ONE SWARM IN SIX YEARS.

My pa has 55 swarms of bees. He has lost but one swarm of bees in six years. We got over a ton of comb honey this year. I help with the bees what I can. I have a little brother six years old. He and I go to school one mile. I also have a little baby-brother. He never saw Christmas till the one just past. He is three months old, and can laugh and play. **ALTON D. HARMON**, age 9.

Cambridgeboro, Crawford Co., Pa., Dec. 29, 1885.

SEALS.

When I was at Santa Barbara last I heard that there were some seals in cages on the wharf, so I went down to see them. There was an old mother and her little one in one cage, and three larger ones in another cage. They caught them from one of the islands twenty miles from Santa Barbara. They caught them with the lasso; and when they saw one they would all throw their lasso at him and catch him by different parts of the body and drag him on shore and put him in a cage that they had ready for him. They repeated this until they had caught those that I mentioned before. They then sent them to Santa Barbara for the people to see. The next morning they took them to San Francisco for Mr. Woodward, for his garden. They had very mild eyes, but for all that they were very fierce. They would snap at you if you put your hand near them. They are so very quick that they would turn clear over and grab a stick so quick that you could hardly jerk it away in time to keep them from grabbing it. Some of the boys were trying to pull out their whiskers, when the owner came along and made them stop. **ERNEST C. HILTON.**

Los Alamos, Cal., Dec. 26, 1885.

At Chicago, a couple of years ago, after I had visited T. G. Newman's place of business, I went to Lincoln Park. Among the notable features of this resort was a seal, or, perhaps, a sea-lion. At any rate, he would swim in the water at an astonishing speed, and bark very much like a dog at the passer-by. I remember that one old gentleman pointed his gold-headed cane at the animal's nose. At this the seal seemed immediately to take affront, and, with wonderful sagacity, swam to the other end of the pond. Here he disappeared under the water, and almost immediately reappeared directly in front of his offender, and then with one tremendous splash almost drenched the possessor of the cane. As you say, they seem to be wonderfully quick and keen. **ERNEST.**

THREE BEES DIE FROM THE EFFECTS OF THEIR STINGS IN EIGHT, SEVENTEEN, AND TWENTY HOURS RESPECTIVELY.

My brother keeps bees, and we let three sting a piece of soft buckskin, and they lost their stings. We put them in a cage and feed them all they wanted to eat. One lived eight hours, one seventeen, and the other twenty. I have Our Homes, part first and second. I read them out loud to mother and father, and my sisters and brothers. Mother says the books are worth one dollar. I have two brothers and two sisters; my brother likes Our Homes. **NETTIE H. CRANSTON.**

Woodstock, Ohio, Dec. 20, 1885.

Thanks for the additional light you furnish. In former cases bees have lived four, five, and six hours after having stung; but you give an incident of one surviving 20 hours. Now, while we think we have established with almost certainty that bees die after the operation, yet this may not be invariably the case. We have been led to suppose, or, rather, an opinion has prevailed, that bees have not only lived, but have even gathered honey, after losing their sting. I have seen this statement somewhere in one of the bee-books. Does any juvenile or anybody else know of such a case, or that a bee lived two days or after? In dealing with science we must deal exactly, and must not jump to the conclusion too soon, that bees *always* die soon after losing their sting. **ERNEST.**

REPORT FROM A CARP-POND; ALSO ABOUT THE CALADIUM ESCULENTUM.

Grandpa has 75 hives with bees, and pa has 4 stands. We live with grandpa. I have five brothers and two sisters. My ma is dead. I have a little blue-eyed sister nine months old. My ma died when she was just eight days old. Grandma has the baby to take care of. Grandma says she writes grandpa's letters to you. She says she sent you a Caladium-esculentum root. Did you ever get it? Grandpa has a fish-pond with lots of German carp in. Last summer we ate some fish. Grandpa says they are about as good as shad.

Pekin, Ill. **IDA B. LAROSH**, age 10.

Yes, friend Ida, we got the *Caladium esculentum*, and it grew nicely; but we did not see water dripping from the leaves, unless it was kept very wet. I presume if it grew in a swampy place where the ground is very rich it would have water on its leaves all the while. Give my thanks to your grandma, friend Ida.

A LIVING FLY-TRAP; HOW MANY FLIES WILL A TOAD EAT?

Your article in GLEANINGS last summer, about toads, was very interesting; and as we are now allowed to write about our pets, I will tell you about a pet toad we once had. A few years ago one came into our summer kitchen through a hole in the floor. We allowed it to stay and catch flies, so after that it would come up every day. One day we put some sugar on the floor to attract the flies, and when the toad came up we counted the flies it caught. It ate 150; and seeming to think that enough for one meal, it went away. I think a toad is a splendid fly-trap. Papa says: "If you go to your carp-pond next spring about the time the little 'pets' close their concert for the season, you will likely hear a musical note in a trilling monotone; and if you look closely you will see Mr. Toad, with head erect and chest expanded, pouring forth his song of love." He also says: "The little *black* polliwogs become toads, and the brown ones frogs." I will tell you about our bees in my next.

ETHEL J. BEATTY.

Shaw's Landing, Pa., Dec. 28, 1885.

Thank you, Ethel, for your very interesting letter about your little pet. You have a capital fly-trap indeed, and I should say that master Toad would not have much room left after having dined upon 150 flies. Whew! I wonder if he felt as little boys do after they have had their Christmas dinner. I fancy bees would go down the same wide mouth to destruction, could his toadship but have the chance. Most certainly we like to hear about pets when the spirit of the fine print at the head of this department is adhered to. This you certainly have done; and to encourage others I think we shall send you a chromo. **ERNEST.**

OUR HOMES.

Thou shalt love thy neighbor as thyself.—MATT. 19: 19.

FRIEND ROOT:—You are a Christian, and have had long experience, hence I ask your advice. I was once a professor of religion. I was young, and became a backslider. I have never since enjoyed myself. I saw more happiness while an active member of the church than I have ever seen in the long years since. Now, on the first day of January, 1886, I started again, and am going to join the church and try to be willing to bear my cross in every instance. I owe a good many debts, most of them small ones, and I am going to write or call on all my creditors and let them know that I am now going to make restitution for my sinfulness just as fast as the Lord will let me. My prospects are at present very flattering for the coming season. Have I the right, as a Christian, to invest in one or two bee-journals as long as I am owing debts? Now, it seems to me that it would be right for me to invest in about two good journals, as I believe by such an investment that I could then make enough more than I would if I took no journals. Am I right? If right, will you let me have GLEANINGS for 1886, and let me send you untested Italian queens, or money, whichever is most convenient, in June, 1886, subscription for 1886 full?

I want to be able, from this time onward, to do just what my conscience tells me is right—to pay every man just what I owe him, and always do a little more than I think right, rather than to do any *less* than my conscience tells me is right. I always thought I was a sort of moral man, but I can now see how useless my life has been, to what it might have been had it been spent in the service of my Master. I could write much more, but it seems to me wrong to occupy any more of your time. Pray for me that I may ever be a servant of God henceforth. X. Y. Z.

Although the above letter was not written for publication, I am sure our friend who writes it will excuse me for using it in this way when I assure him I think the story of his experience and trials may be a means of helping many another brother. I thank you, friend X. Y. Z, for the great confidence you repose in me in wishing for my advice, and most gladly do I give it, and most gladly do I pray for you that you may hold out and prove faithful; for if you do, I *know* that God will bring you safely through all your troubles.

In regard to the question you ask, and all other questions of this kind, there may be differences of opinion; and very likely many of the brothers and sisters will think I am a little extreme and a little severe in the plan I would recommend; but, dear friends, I have had years of experience in this matter in watching boys and girls who had foolishly let their expenses go beyond their income, as well as older people; in fact, this one sin of contracting debts that can not be paid has been one of the most grievous in leading astray those who seemed to have started well, but got off from the track. As I understand the matter, *I* am not the one to advise as to whether you should take a bee-journal or not, or make other investments of a like nature. So long as you are owing an honest debt, the money you have in your possession, as I see it, is not yours: it belongs to these friends who have been so kind as to credit you; and when any question comes up as to investments, aside from the one investment of using what little money you have to pay debts, I think *they* should be consulted. It is not only that you want to succeed in eventually paying all you owe, but it is that you may honor the Master, not only at some future time, but even now. You may meet sickness or death, and be absolutely unable to pay these debts. How shall you honor the Master meanwhile — that is, before you are able to pay your debts? What ought a Christian to do in such cases? It is true, you must have a little money for necessary expenses; for if you decide it best to hand over *every* dollar to your creditors as fast as you earn it, it might so cripple your abilities that you could not work to advantage. Now, whether the amount is large or small, I would try to do it on a basis something like this: I would first sit down with pencil and paper, and make a neat and accurate list of all I was owing my friends; then I would go to them personally, or write them, and tell them just how the matter stood, and ask permission of them to use what little money I might have, in such ways as might seem best and wisest. If you are owing these friends money that ought to be paid, the money you have in your possession is theirs and not yours. If you can make an arrangement with them to wait on you until some set future time, all well and good. Then you can meet them and look them in the face without fear or shame, and without the recollection of broken promises. My experience has been, that there are very few people in the world who will not willingly agree to wait for money, with a reasonable expectation; and especially is this the case where you mutually agree upon a fair rate of interest, and keep the interest paid. Where it is impossible to pay the debt, it is oftentimes within the debtor's power to pay the interest — say yearly, semi-annually, quarterly, or monthly, as may be agreed upon. Now, even if this payment *is* only a few cents it is a sort of guarantee that you mean to be straightforward and honest. It goes a very great way toward giving confidence. I would advise one who is in debt, as you say you are, to sacrifice a great deal, and go to a great deal of trouble to pay this matter of interest promptly; and it has often seemed to me as if God took pleasure in honoring a man who pays interest promptly, by helping him very soon to pay the principal also. This matter of paying interest seems to get one who is down, upon his feet again. If he is not paying up the principal as he agreed and expected to do, he is doing the next best thing. A dollar is a small amount of money, and some may laugh at me when I say that, if I were you, I would not even subscribe for a bee-journal until I had the consent of my creditors. There may be several other investments you would like to make. Put them down in writing, submit them to your creditors, with the reasons you have given me; and if they say, "All right, old fellow, send for your bee-journal," then you can do it with a clear conscience. Just try it and see how much happier and light-hearted you feel at once. The idea is, that you have obtained an honorable discharge from the debt for the time being, and no one whom you are owing can say, as you take your periodicals from the office, "I think Mr. X. Y. Z. had better pay me what he is owing me before he spends money in that kind of way." When you want to go to prayer-meeting, and are called upon, as God calls upon us all, to stand up and testify for the Master's sake, how much better you will feel when doing it, if you have made honorable arrangements for all these outstanding debts! It seems to me, dear friend, you do not know how much it helps the world to have faith in Christianity and in a Christian profession, to have each follower of Christ attend to these little things—these small items.

You say you were once a professor of religion when you were young. I suppose you know, my friend, that the danger is tenfold greater that you go back, when you have once wandered away from the fold. The horse that has run away once is very apt to run away again; and after he has run away three or four times the world generally settles down to the conviction that there is no cure for him—he is always nothing but a runaway horse. I do not say this to hurt your feelings, but I say it to warn you of the very great need there is of being careful in your second start. It is not at all impossible for one to repent and come back afterward, when he has wandered away, or even if he has repeatedly deserted his Savior. It is only a simple matter of the will. By dallying with sin, the will power becomes weakened; and when temptation comes we are apt to think it does not make very much difference if we go back to our sins, and then at some future time make still another start; and by and by the poor deluded victim of Satan does not care to try any more — he gives up to his fate; therefore, one who has once slipped back, and starts again, must recognize that it is of the greatest importance to watch every little thing, even small trifles like taking a dollar to subscribe for a bee-journal. The laws of God and the laws of our land are terribly severe on those who take what belongs to their neighbors, without rendering a proper equivalent. Our text says, "Thou shalt love thy neighbor as thyself;" and the law of our land says, "If you do not respect the property of your neighbor, you shall be severely punished."

Last Sunday I met two of our neighbors in jail, who were bowed down with grief. One of them is the father of a little family. He was sentenced to thirty days in the workhouse, in a neighboring city, and a fine besides. What do you suppose it was for? The two men together stole four chickens of a neighbor. They were drawing this neighbor some wood, and the chickens were very tame, and came so near where they were unloading that it was an easy matter to pick them up. They took two apiece, and took them home; but afterward their consciences troubled them so much that they went to this neighbor and paid him to his full satisfaction for the fowls. The matter was supposed to be all pleasantly settled. Not so, however. A third party heard about it, and had them arrested. The fact that they had settled for their folly, and paid over the cash for twice what the fowls were worth, did not alter it. They were in heart, and before God, guilty of stealing, and the law did not release them, even if they were sorry afterward, and settled it. Now, forgive me if I cut close. Suppose these two men had, by entreaties, urged this neighbor to trust them for a few days for the fowls, but afterward, finding themselves cramped for money, had put it off from time to time, and finally never paid him. Suppose, too, that when he was importunate for his money for the chickens the men should get angry, and tell him flatly they would not pay it until they got ready, and to help himself if he could. In this latter case the law could not touch them—that is, in most States at least, they could own considerable personal property, exempt from any claims the creditors could make. If my knowledge of the law in the above matter is at fault, please excuse it; but I think I have it substantially correct. In one case the owner of the fowls is wronged as much as in the other, or a great deal more; because, in the first case, he lost no money at all—in fact, he got a big price for the fowls. In the latter case he never gets any thing, and perhaps spends a good deal more time in trying to get it than the fowls are worth. I have dwelt on this, because I wish to have the friends all understand, especially the younger ones, what a grievous thing it is to incur a debt one can not pay.

Perhaps I might touch on another phase of this matter of debt. There are those who deliberately contract debts knowing there is very little or no prospect of being able to pay them. The law can punish a thief, but it can not punish this class. I believe, however, that this latter class is comparatively small. I have never met many people who did not fully intend to give value received when they made purchases; but even with honest intentions, we often harm ourselves and harm our neighbors. The class of people who do these things are often those who are bright, cheerful, and hopeful; and, my good friend X. Y. Z., I hope you will excuse me for saying that I feel almost alarmed to hear you say, "My prospects are at present very flattering for the coming season." May be they are; but judging from past experience, I believe I would rather you felt as if they were the other way. I believe I have known young men to get along better when they looked at the future something like this: "It is a sad truth, that the prospect before me is not flattering. If I succeed it will be only by earnest, faithful, hard work, early and late; therefore I have no money to spend on amusements. I can not afford to stop and listen to gossip. I must be at work by daylight, and work while the daylight lasts, or I shall never be able to meet my honest obligations." One who feels this way will come out all right.

In regard to taking queens of you in June, 1886, we have been obliged to tell our friends that we dare not promise to take queens so long ahead. We don't know what the future is. I should fear to make promises six months ahead, which it may trouble us to keep. Another thing, friend X. Y. Z., it would be, at least to a small extent, encouraging you in adding to the debts you have already. It is putting it off a long time ahead, I know; or, in other words, you have a good while in which to make the money. But this very thing I fear: A good many who, like yourself, have become involved, often seem to think if they can get an accommodation for a *long* time it is all right; but when the long time has expired, nine times out of ten they find themselves just as badly off, or worse, than when the debt was contracted. You have come to me for advice, and I have spoken my convictions very plainly and fully. Dear friend, I would not go in debt to the extent of one dollar, even if you can have six months' time in which to pay it, if I were situated just as you are, and wanted to pay up my debts and follow my Savior. The concluding part of your letter is excellent, and the spirit of it is right.

There is a part of your letter, back a little, that I wish to refer to. You say you are going to make restitution "just as fast as the Lord will let you;" that is, if he prospers you, you will pay your debts; but if he does not, how can you? I know there are two extremes in both ways here. Unless the Lord gives you health and strength you can not earn any thing at all, so you are dependent upon him. But we are all of us prone, I am sure, to get into a way of thinking, when we fail of doing what we know we ought to do, to give up and content ourselves by saying, "The Lord did not see fit to help me do what I wanted to do," when the truth is, we have not made proper use of the blessings already given us without stint. Those who have once gone astray, and started back again, are specially apt to get into this way of reasoning. I believe it is very seldom that God does not provide a way in such matters as this, where the one who is striving to follow him is in dead earnest in the matter. What I mean by "dead earnest" is to be self-sacrificing, careful, sober, and wise. In our zeal to pay our debts we might overwork ourselves, and thus defeat the object in view. But I do not think this oftens happens. People tell me I am overworked, a great many times, and doubtless they think so; but it is not true. It *is* true, however, that I waste my strength and energies, oftentimes, on things comparatively trifling and unimportant, and then I can not do the important work that ought to have taken the place of these.

Now, then, to the last point before us. How shall friend X. Y. Z. get a bee-journal, or several bee-journals, when they would no doubt be worth several times their cost to him? Candidly, dear friends, I do not know. I would give him GLEANINGS without charge, most gladly and willingly, were it for his best spiritual good that I did so. Yes, I would give him a hundred copies if I were sure it would result in building up Christ's kingdom. But my experience in gifts in this way has not been pleasant. I can look back through the years, and see a great many times when I tried to make the path easier for some poor sinner, by gifts of money or other things that he had not earned, that I made it harder because I relieved him a little from the responsibilities that God wanted him to bear. I dare not do it any further. I have asked God to give me money that I might use it in saving souls. The money has come sometimes bountifully, and I have used it, as I thought, wisely; but it has almost always done harm unless I used it as a reward for fair and honest work. Friend X. Y. Z. has not asked me for any gift, it is true; but this thing had to be considered: What will be the best course for our boys and girls—yes, for our sons and daughters, in helping them to build a good Christian character? My reply is, that I know of no way but to let them earn the things they want, by the sweat of their face—by the exercise of their minds and muscles. I said I did not know of any way our friend could get a bee-journal, under existing circumstances. What I meant was, that I did not know any way except the one I first pointed out—get the consent of his creditors before he uses money belonging to them. I did not mean to say that *I* would not trust him for GLEANINGS for six months or a year, because I will gladly, if he wishes me to. Yes, he need not pay for it for five years, if he thinks best to do that way, after what I have said. I meant simply this: If he wants my advice, and wants me to stand in his shoes, to use a common expression, my advice for him is, not to run in debt one copper for any thing; get the consent of his creditors in the way I have marked out, and then pay cash down for every thing he buys, or else go without it. The accumulation of debt has made him enough trouble already. Don't have any more of it; and if there are other brothers or sisters situated in like circumstances, I say the same to them. Look at it as you look at any other temptation that Satan may hold before you. Say to him, "No, sir; get thee behind me, Satan," and then *make* him get behind. Do the same with other besetting sins, and ask God to help you to do it; and if a happy, useful, prosperous Christian life does not open up before you, then I shall be much mistaken.

Our text says, "Thou shalt love thy neighbor as thyself." Well, dear friend, suppose you were owing a neighbor money which you have promised him, and failed to get. Suppose, too, he needs it badly. You know it is not unlikely that he may be failing in his promises because you have failed in yours. *His* good name must suffer because he has been forbearing and patient with you. Well, now, under such circumstances suppose when you have some money that you might pay him, you should, instead of handing it over to him, use it for something you didn't like to give up yourself. Do you not see how very far you would be from obeying the spirit of the text? Do you not in reality act as if the text read this way: "Thou shalt love thyself better than thy neighbor, and under all circumstances let *self* come first when you are obliged to choose between the two?" The spirit of the text is to the effect that we should consider our neighbor's own good or his best good, just as much as we should consider our own good. But when it comes to choosing who should be accommodated, yourself or neighbor, when the accommodation is due him, and is *not* due you, the obligation on your part becomes a very sacred one. If I owed a neighbor some money, and he needed it, and wanted it, I think I would do without a bee-journal, and, in fact, almost every thing else, until he willingly granted me permission to delay payment.

I do not by any means think it wrong for people to borrow money, or to borrow things. We confer great favors on our neighbors by borrowing things they want to lend, and many of us have money that we are very glad to loan to somebody who can make use of it so that it will be a mutual accommodation. Such transactions are right and proper. But the great important thing for a Christian to do is to keep on safe ground, so that he can not only pay the interest promptly, but pay the principal, say twice over, any time it may be asked for, and that, too, without any great sacrifice. I have sometimes invoiced myself something like this: "I am owing, say, one thousand dollars, or paying interest on one thousand dollars, borrowed money; but I own property that would sell readily right here at home, without much effort or time, for ten thousand dollars; therefore I can not in any case be very badly cramped." But suppose the circumstances should show like this: "I am owing one thousand dollars, but my whole effects would not probably sell for moret han four thousand, if I were obliged to sell." Now, the above is not so bad; but still not what I should call really safe ground. I do not like to be in that predicament; and when our personal effects are not all together worth more than twice what we are owing, we are in great danger. Sickness, decline in values, fires, robbery, or things of that sort, are liable at times to place us where we can not show such a record before the world as every follower of Christ ought to show.

Now, why can we not be happy and satisfied and contented with the things we are able to buy, without running deeply into debt? Why, almost anybody will tell you that the satisfaction and real enjoyment is in being out of debt — or, at least, in owing so little that you shall never be distressed in paying it, should it be suddenly wanted. Has it ever been proven to you that happiness necessarily follows good speculations, or doing a large amount of business?

Now, friends, what is to be gained, after all, by running risks, and even succeeding in making good speculations? Is the good to be secured in any measure to be compared to the danger? What shall it profit a man if he gain the whole world, and lose his own soul? May God in his great and loving mercy watch over you, friend X. Y. Z., and give you wisdom; and may he bless these words that have come from one who is but a weak brother after all, not only for your use, but to the multitude of others like you whose eyes may fall upon this Home Paper. May he teach you the way to that only real enjoyment and peace; and may he in the end lead us all to the golden gates of eternal life, where we shall comprehend and understand the very, *very* great importance of trying, at all times to love these neighbors all round about us as we love ourselves.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

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MEDINA, JAN. 15, 1886.

Be diligent that ye may be found of him in peace, without spot, and blameless.—II. PETER 3: 14.

PEAT INSTEAD OF MOSS FOR COVERING SEEDS.

SINCE writing "What to Do, etc.," for this issue, our gardener tells us that dried and sifted peat will answer nearly or quite as well as the dried and sifted moss that Peter Henderson recommends.

NAMING THE SEEDS.

THE *Rural New-Yorker* sends out a kind of field corn which they have labeled "Angel of Midnight." Truly, the *Rural* folks are booming with enterprise and "go ahead." They send all their patrons a good lot of nice seeds, any way.

THE HEAT OF OLD MOTHER EARTH, VS. STEAM HEAT.

OUR poultry-house, warmed by steam, gives us, during this zero weather, one egg a day—perhaps a dozen hens. A neighbor gets nine or ten a day from thirty or forty fowls. When I asked him how it came that they laid in the depth of winter, he said they were in a cellar under his barn, built on a side-hill. The heat of old Mother Earth keeps them warm. Are we all of us making the best of such natural facilities for warm underground quarters for our stock? The heat of the earth, when we once get fixed so as to utilize it, is cheaper than fuel.

A NEW SILVERHULL BUCKWHEAT.

PETER HENDERSON mentions, among his novelties for 1886, European silverhull buckwheat. We wrote him for particulars in regard to it. Even if it has but a *little* advantage over the old kind, we bee-keepers must have the benefit of it. Here is what he has to say in reference to it:

> This is a most desirable acquisition for this country, and it has done remarkably well the past two seasons as far north as Northern Vermont, where the seed we now offer has been grown expressly for us. It may be depended upon to ripen in any thing like a favorable season from ten days to two weeks earlier than the native American silverhull or common buckwheat. Berry is small, with rounded corners, and of a beautiful silver-gray color; grows to the uniform height of three feet, standing up well and branching luxuriantly. Straw, a deep rich wine color when ripe. It is a heavy yielder and thus far is not so easily affected by drought and frost as other buckwheat.

We can furnish the seed in five-cent packages, or in larger quantities, at about three times the price of the old silverhull. We shall give it a thorough test this coming year on our honey-farm, and report.

DOES IT PAY TO HAVE AN IMPORTED QUEEN IN YOUR APIARY?

THIS question often comes up, and I should be glad of the experience of honey-producers in the matter. Do you get more honey from Italian bees, say only one or two generations from Italy, than from stock bred four or five years in our own country? Selecting for many generations the best honey-gatherers to breed from would probably improve on the stock received direct from Italy; but, how has it turned out in practice? A few years ago it was decided that bees from stock not very long from their native clime gathered more honey than Italians that had been a long time on our shores. Let us have some facts from actual experience.

OUR CATALOGUE OF VEGETABLE SEEDS, PLANTS, HONEY-PLANTS, ETC.

WHEN our last issue went to press, the type was already up for this catalogue, or nearly so; but we have been so crowded to get off promptly the circulars and price lists for the bee-brethren, that our own was obliged to stand still and is standing still yet. We hope it will be out, however, within the next ten days. Besides seeds and plants, it includes also supplies for market gardeners, and some supplies for the poultry business; also galvanized wire cloth for carp-ponds, fruit-dryers, etc., etc. Our facilities for getting the above goods at a low price are such that we believe we confer a favor in handling them; for by buying in large lots as we do, we are enabled to give prices on such things at retail, heretofore unknown.

HATCHING CHICKENS IN JANUARY.

THERE, I have gone and counted my chickens before they are hatched. It is one of our nice Brahma hens that is going to do the hatching, and she is under one of the benches in the greenhouse. When I put her there she would not sit down on her nest; but after I took thirteen eggs out of my pocket, and placed them beside her, she took her bill and pushed them under with great satisfaction, and sat down as motherly as one could wish. When it came breakfast time, however, she got into one of the boxes of lettuce plants, and don't you believe she made them fly? Some of them must have hit the glass overhead; and after she did the same thing next day, Mr. Weed, the gardener, wanted to have her discharged for bad behavior. We didn't, though; we just put some poultry netting around her, and now she sits in one corner, and sits equal to any new-fangled incubator. She started New-Year's day, so the chickens ought to hatch out on the 21st. In our next number I will tell you how many she brings out. I presume likely Huber will be able to count them.

SOLAR WAX-EXTRACTORS.

OUR friend Arthur Todd, of Germantown, Pa., sends us a copy of the *Bulletin de la Societe d'Apiculture de la Somme*, one of the most enterprising of our foreign exchanges, dated July and August, 1879, containing a picture of a solar wax-extractor, made by putting a pane of glass over the top of a machine that closely resembles Dadant's uncapping-can; so it seems that solar wax-extractors have been a good many years in use. And, by the way, I do not know why an uncapping-can might not answer excellently, with a circular piece of glass dropped down in the top a few inches, and then the whole machine inclined at the proper angle toward the sun. If the inside of the upper can is kept scoured with whiting it will be an excellent reflector. I would drop the piece of glass down a few inches, to be out of the way of the wind a little more. Please let us have reports from this arrangement. Meanwhile we extend thanks to friend Todd, who was, we notice, an apicultural delegate to the Paris Exposition in 1878.

THE NECESSITY OF LARGE PROFITS ON SEEDS OF DIFFERENT KINDS.

WE oftentimes wonder why seedsmen pay, say a dollar a bushel for a certain kind of seeds, and retail them out for two or three dollars a bushel. One reason why there must be large profits is this: Every seedsman wants to have enough seeds to supply all demands; but in order to do this there is no way but to buy a good deal *more* than enough; and as it is not advisable to use many seeds more than one year old, the surplus remaining on hand must be burned up, or sold at an insignificant price compared with first cost, or be fed to stock. Almost every year we have to throw away seeds of spider plant and figwort that cost us a good many dollars, or else face the other dilemma of being unable to supply the demand.

A BRANCH SUPPLY - HOUSE FOR THE FRIENDS IN THE SOUTH.

FOR years there has been much talk about some arrangement whereby our friends in the South might have their supplies, without paying the enormous express and freight charges that they have had to pay for years back. For instance, if a man wants ten pounds of foundation, and wants it right away, there is no way he can get it very well by mail, freight, or express, without paying about half its worth to him in the way of charges—that is, providing he deals with us, and a great part of our trade comes from the Southern States, especially the latter part of winter and early in spring. It is true, we have supply-dealers in the South, whom I would by no means forget; but none of them have ever felt like keeping the extensive and varied assortment that we keep. Well, for months past we have been corresponding with Mr. J. M. Jenkins, of Wetumpka, Ala., and he has recently paid us a visit, and looked the whole matter over, and we may say the arrangement is now completed. The goods are to be shipped to friend Jenkins by the carload, so that the freight is really but a small item. Where he has customers near to us he will have the orders filled from our place, and *vice versa*, and he will furnish *nearly* all we advertise, at our prices. Friend J. is not only a bee-keeper, but he is a railroad man, and has been for many years perfectly conversant with the whole matter of freights, north and south; and as he has also served as express agent, he is at home in regard to all express business. Furthermore, he is a man held in high estimation by all railroad companies in his section, and many of the managers of the different companies have expressed their willingness to assist him in the enterprise. Friend J. being a railroad man, has, by the assistance of other railroad officials, arranged to secure a wonderfully, low rate of freight from our place to his. He manufactures Simplicity hives from southern white pine, so as to sell them at our prices in Wetumpka.

Now, then, if we can not help in this great matter before us, of bringing about friendly relations, and especially friendly *business* relations, between the North and South, it will be funny.

TOBACCO COLUMN.

TOBACCO AND HEART DISEASE.

THERE is one evil, and I think one of the greatest, yet I have never seen it in print. That is, sudden death from heart disease; but I say, tobacco disease. These deaths have increased a hundred fold since my young days. I am over 81 years old; 70 years ago I saw but one smoker, and he an old man or old woman, where we now see a thousand among the same number of people. Young men commenced smoking about ten years after; and about forty years later I saw, for the first time, little boys smoking.

We had no matches nor cigars till about 1830, hence smoking was more difficult. I never saw, in any newspaper of that date, an account of any children falling dead, although I read several weekly papers, but now I see accounts of several boys and girls who dropped dead at the age of about 14 or 15 years old. This evil increases as smoking increases. If the increase of smoking is as great for 50 years to come, I believe the sudden deaths will be 1000 times as great. And why? Because these children now smoking will raise children who will inherit the tobacco poison from them. Many infants in these days inhale this poison into their tender lungs the first days of their lives, from a smoking father, in a tight room. Since 1830, cook-stoves have been introduced; hence smoking in a shut-up room is much harder on an infant in the cradle, and all others, than it was when there were none but a few old people who smoked, and that in a chimney-corner, where nearly all the poison would go up the chimney.

I find that railroad offices are filled more with tobacco poison than elsewhere, and officers frequently drop dead, one lately in Cincinnati. No railroad officer should be allowed to smoke. It divides their attention, addles their brains, and hinders sober thoughtfulness; hence the danger of life and limb, so frequently of late, on railroads.

Plainville, O. ISAAC LARRANEE.

HOW THE "DOSE" CURED.

I did not think to explain myself. I used tobacco for about 20 years. I quit 4 years ago this fall. I have never used any since, and never expect to again. I am now 51 years old. I have read the "Dose," and it is the best I have ever seen. I will do all that I can to stop the use of tobacco. I will lend the Dose to others to read. I have been handling bees for five years. I have never had more than 20 colonies at one time. I have sold down to four this winter. I don't think this country is very good for honey. There has been but one good year since I came here. LEWIS N. COOPER.

Tehama, Cherokee Co., Kansas, Dec. 24, 1885.

I hereby promise to pay for the smoker, whatever the price may be, if I ever am weak enough to chew or smoke any more tobacco, or use it in any other form. J. C. PARKS.

Scottsboro, Ala., Nov. 16, 1885.

I have quit the use of tobacco, after five years' use; and if you think me entitled to a smoker, send me one; and if I ever use the weed I will pay you for it. I take a deep interest in bees.

WARREN KEY.

Victory, Carroll Co., Ga., Nov. 30, 1885.

AN HONEST OWN-UP FROM ONE OF OUR BOYS.

I returned home from Sioux City last Monday; that is why I failed to answer your letters. I was gone two months. The 75 cts. is for the smoker you gave me for quitting tobacco. I have broken my pledge. I smoked a cigar to ease my toothache while in Iowa, but it makes no difference. I broke my pledge. However, I have quit again. Don't put me in the Tobacco Column this time until I see if I can hold out. REESE POWELL.

Mineral Point, Wis., Dec. 18, 1885.

May God bless you, friend Reese, for your truthfulness, even though you *have* broken your pledge. You have fulfilled your promise to the very letter, and I am very, very glad to hear you say you are going to try again. I have disobeyed you a little in putting this in print; but since I do it for the encouragement of lots of other boys who are looking on, I am sure you will excuse me. I believe if I were you I would bear the toothache rather than take the risk of starting the old habit again. May God bless you, my young friend, and help you to hold out.

CONVENTION NOTICES.

The North-Eastern Ohio and North-Western Pennsylvania Bee-Keepers' Association will hold its seventh annual convention in Meadville, Pa., Wednesday and Thursday, Jan. 20 and 21, 1886.

New Lyme, O. C. H. COON, Sec.

The next meeting of the Maine Bee-keepers' Association will be held at Skowhegan, Maine, Jan. 19, 20, 21, 1886. WM. HOYT, Sec'y.

Ripley, Me.

The Bee-Keepers' Association of Hancock Co., Ohio, will meet in Findlay, Sat., Jan. 23, 1886.

Stanley, Putnam Co., Ohio. S. H. BOLTON, Sec.

The Twelfth Annual Convention of the Champlain Valley Bee-Keepers' Association will be held in the basement of Town Hall, Middlebury, Vt., Thursday, January 21, 1886. A general invitation is extended to all. R. H. HOLMES, Sec.

Shoreham, Vt.

The Indiana Bee-Keepers' Association will meet in Indianapolis, Jan. 21, at 1 P. M., in the State Board of Agriculture Rooms, opposite the new Statehouse. We should be pleased to have all meet with us, and hereby send an earnest invitation to come. JONAS SCHOLL, Pres.

Lyons Station, Fayette Co., Ind.

The Eastern New York Bee-Keepers' Association will hold its Annual Convention in Agricultural Hall, Albany, Tuesday, Wednesday, and Thursday, January 26, 27, and 28, 1886. There will be three sessions each day after the first. First session Tuesday, 26, at 2 o'clock P. M. All interested in bee-keeping are requested to attend, and bring apiarian supplies for exhibition. The programme will consist of essays on important subjects, discussion of questions of interest, etc.

Halfmoon, N. Y. C. W. PHILO.

The North-Eastern Michigan Bee-Keepers' Association will hold its fourth annual convention, Wednesday, Feb. 3, in the Council rooms at East Saginaw, Mich. The Sherman House, one block from place of meeting, will entertain those present, at $1.00 per day. Saginaw folks are working hard to make every thing pleasant for those from abroad. Let us turn out and show that we appreciate their efforts. W. Z. HUTCHINSON, Sec.

Rogersville, Mich.

The Seventeenth Annual Convention of the New York State Bee-Keepers' Association (formerly North-Eastern) will be held in Rochester, N. Y., on 16th, 17th, and 18th of Feb., 1886. This will be one of the largest meetings ever held in the State. A large number of our most experienced bee-masters will take part in the discussions, and several essays will be read from a number of our most practical men throughout the country. The programme is complete. If you are young in the work, you can not afford to stay away. If older, you may give some good hints, if you get none.

We want a good display of all kinds of supplies and fixtures. We have a room on purpose for exhibits, and any goods sent to the secretary, in care of the "National Hotel," Rochester, N. Y., will be placed on exhibit and either sold or returned to the exhibitor, as directed.

Reduced rates at the hotels have been secured, also rates on some of the railroads. All will have to pay full fare one way; return ticket at ½ fare, by presenting certificate from the secretary, who will furnish them on application. We want an active vice-president in every county in the State. Please name or send the name of some one for your county.

F. C. BENEDICT, Sec.
Perry Center, N. Y. L. C. ROOT, Pres.

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS,

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CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

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(ARTIFICIAL)
WITH RUBBER HANDS AND FEET.

The Most Natural, Comfortable and Durable.
THOUSANDS IN USE.
New Patents and Important Improvements.
Special attention given to
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At wholesale and retail. Unexcelled facilities. Circulars and estimates free. Successors to S. C. & J. P. Watts. Sta. Kerrmore, B. C. C., & S. W. R. R.

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1-2d. A. A. FRADENBURG, Port Washington, O.

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We have just purchased a large lot of fine beeswax at a bargain, which will enable us to sell fdn. very cheap for cash.

NOW IS YOUR TIME TO PURCHASE.

Our fdn. will all be manufactured on the celebrated Given press. Write for special rates to dealers and large consumers, stating how much you want, and what kind, whether thick or thin. We send sample of foundation free. Our Price List of

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400 COLONIES OF BEES.

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is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

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3btfd **Hamilton, Hancock Co., Illinois.**

FOR SALE. Five pair fine Pekin ducks, at $4.00 per pair.
1tfdb D. D. FARNSWORTH, Clive, Polk Co., Iowa.

FOR SALE.

100 lbs. *Beeswax, choice yellow*, per lb., 30 cents; 100 lbs. dark, at 26 cts. per lb., warranted pure and good wax.

80 lbs. 1¼-inch *Wire Nails* (barbed) 13 gauge; in lots of 10 lbs. and over, per lb., 7c.

Stencil and Key Check Die Outfit. Price and full list on application.

Four Horse-Power Engine and Boiler (B. W. Payne & Sons' make), not used over three months. Warranted in good order. Also *18-inch French Burr Corn and Feed Mill.*

One Barrel-Steamer for cooking feed. Furnace, 1¼-inch boiler iron, "T" pipe, brass cocks. In good order. Prices, etc., on application.

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1-2d GRANDVIEW, LOUISA CO., IOWA.

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AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

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2 tfd **Hartford, Washington Co., Wis.**

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10	JUTE TWINE, ½-lb. balls	48	4 75
6	INKSTAND, no cover, a little beauty	45	4 25
	TEN-CENT COUNTER.		
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3	FILE, slim taper	90	8 50
2	FILE, ROUND BASTARD, 5 in	80	7 00
10	MEMORANDUM-BOOKS, 64 pages, 10c per doz	95	9 00
	A large one 5x11, 144 pages, ruled for accounts, for 10c.		
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5	UTILITY MEASURE, tin, ½-pint, with funnel attached	95	9 00
	Just the thing for filling bottles.		
	LAMP-SHADE HOLDER: this is glass, and takes the place of a chimney	95	9 00
2	POULTRY BOOK, 48 pages, full of pictures	75	6 50
	FIFTEEN - CENT COUNTER.		
	COFFEE-POT, 3 qt., fire-proof bottom.	1 40	13 50
	It won't leak, even when solder melts off.		
7	UTILITY MEASURE, tin, 1 pint, with funnel attached	1 30	12 00
6	FILE, or WOOD RASP, either flat or half round, 8 inch	1 45	14 00
	TWENTY-CENT COUNTER.		
4	KNIFE, one-blade, large, fine steel	1 90	18 00
9	UTILITY MEASURE, 1 qt., with funnel attached; a very useful size	1 75	15 00
	TWENTY-FIVE CENT COUNTER.		
8	BRUSH, CLOTHES, genuine bristle; good	2 25	21 00
7	BRUSH, HAIR, a beauty	2 25	20 00
	OIL-CAN, a graduated glass one in tin case holding ½ gallon	2 25	21 00
	COAL-HOD, japanned, good size	2 40	23 00
10	LADLE, or CUP-DIPPER, agate-iron ware	2 40	23 00
	FRY-PAN, 10 inch	2 25	21 00
	Made of heavy, polished sheet iron, all in one piece. Handle covered with tin, to keep it cool and prevent it from heating the hand; a beauty.		
	THIRTY-FIVE CENT COUNTER.		
	CELERY-DISH, beautifully engraved glass	3 25	31 00
18	HAMMER, bell-face, No. 2, best steel	3 25	31 00
	OIL-CAN, tin, 2 gal., good	3 25	30 00
	A graduated glass oil-can in tin case, 1 gal., same price.		
	TEA-KETTLE, medium size, made of the very best tin	3 35	32 00
15	UTILITY MEASURE, ½ gallon	2 25	32 00
	An accurate measure with a funnel attached; a most useful utensil.		
15	WASH-BASIN, 9½ in., agate-iron ware	3 40	32 00
	FIFTY-CENT COUNTER.		
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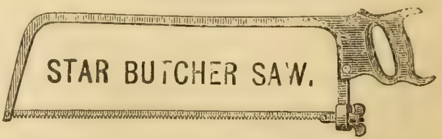
	KETTLE, agate-iron ware, 4x7½ in	4 50	40 00
30	WASH-BASIN, agate-iron ware, 12 in	4 75	45 00
	This ware looks like polished granite, and will last a lifetime with careful use.		
	UTILITY MEASURE, 1 gallon; with funnel attached	4 25	40 00
	SEVENTY-FIVE CENT COUNTER.		
	KETTLE, agate-iron ware, 4x10	7 00	68 00
	ONE-DOLLAR COUNTER.		
	KETTLE, agate-iron. 5x11	9 00	85 00
	TEA and COFFEE POTS, agate-iron, 2 qt	8 50	80 00

MISCELLANEOUS COUNTER.

FOR $1.50.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STAR BUTCHER-SAW FRAME. The frame is beautifully nickel-plated, and the saws are tempered very hard, and are thrown away when dull, as a new one is cheaper than filing it. They stay sharp many times as long as an ordinary saw. Blades are 16 in. long; price of blades 10c each or $1.00 per doz. A larger frame for $2.00.

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FOR $3.50.

An 8 DAY COTTAGE STRIKING-CLOCK, in a very pretty wood frame, gilt trimmed. If you want an alarm, it will be 50 cts. extra.

The following Counter Goods have been reduced from

	15 CENT TO 10 CENT COUNTER.		
3	FILE, DOUBLE-ENDER, with handle	90	8 50
	We have been able to get these so cheap as to offer them, handle and all, for a dime.		
	20 CENT TO 15 CENT COUNTER.		
18	SCREWS, Bessemer steel, gross boxes, two sizes, 1 inch, Nos. 8 and 6	1 30	12 50
	25 CENT TO 20 CENT COOUNTER.		
25	SCREWS, Bessemer steel, per gross, 4 sizes, 1¼ in., Nos. 9 and 10, and 1½ in., Nos. 8 and 10	1 80	17 50
50	WASHBOARD, "O. K.," double	1 75	15 00
	This is a nice, light, good washboard, and with each one goes a very pretty and useful little recipe book, worth almost the 25 cents of itself.		
	35 Cent to 25 Cent Counter.		
38	SCREWS, Bessemer steel, per gross, 3 sizes, 1¾ in., No. 10, 2 in., No. 11, and 2½ in., No. 11	2 30	22 50
	50 Cent to 35 Cent Counter.		
50	SCREWS, Bessemer steel, per gross, 2 sizes, 2 in., No. 15, and 2½ in., No. 12	3 25	31 00
	75 Cent to 50 Cent Counter.		
	SCREWS, Bessemer steel, per gross. 2 sizes, 2¾ in., No. 14, and 3 in., No. 15	4 50	42 00
	$1.25 to $1.00 Counter.		
	STEEL SQUARE, ⅛ and ¼ in. divisions, a first-quality square	9 00	85 00

Same nickel-plated, one-half more.

A. I. ROOT, Medina, Ohio.

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One second-hand fdn. mill that will roll sheets 14 inches wide. The mill is at present in New Hamburg, Ont., Can. The original price on it was $40.00, but we will now sell it at half price, or $20.00.

Also one exactly like it, owned by W. W. Bliss, of Duarte, Los Angeles Co., Cal. There is nothing wrong with these mills, except that the rolls are of smaller diameter than those we now make, in consequence of which they do not make quite so thin fdn. right in the middle of the rolls as those made now with rolls of a larger diameter. They will, however, roll narrow sheets equal to any, and will roll sheets a foot wide; but when of so great a width, the center is a trifle thicker, as explained above.

A. I. ROOT, Medina, O.

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SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
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WARRANTED FIRST CLASS. | **OF FINE QUALITY.**

Samples and reduced price list of supplies, *free.*
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HAVING moved my large queen-rearing apiary from Lewisville to Milton, I will still furnish pure Italian bees and queens in any quantity and shape. Those wanting to start apiaries should write for prices. I also will furnish eggs from California bronze turkeys, at $1.50 per sitting of 9.

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3tfdb JOS. NYSEWANDER, Des Moines, Iowa.

ITALIAN QUEENS,

	March	April May	June July
Untested queens, - - - -	$1.50	$1.25	$1.00
Tested queens, - - - -	3,00	2.50	2.00
Two-frame nuclei, no queen,	4.00	3.00	2.50

3-6db Dozen rates on application.
ANNA M. BROOKS, SORRENTO, ORANGE CO., FLORIDA.

18-INCH GEM PLANER
FOR SALE, FOR $70,00.

Franks' make; used about a month, and warranted in good order. Address E. Y. PERKINS,
3tfd Jefferson, Greene Co., Iowa,

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 1tfd
*S. F. Newman, Norwalk, Huron Co., O. 1tfd
*Wm. Ballantine, Mansfield, Rich. Co., O. 1tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 23tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala. 1tfd
*S. C. Perry, Portland, Ionia Co., Mich. 23tfd
S. H. Hutchinson & Son, Claremont, Surry Co., Va. 5-3
*E. Kretchmer, Coburg, Mont. Co., Iowa. 23tfd
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G. F. Smith, Bald Mount, Lack'a Co., Pa, 23tfd
*Jos. Byrne, Baton Rouge, Lock Box 5,
East Baton Rouge Par., La. 23tfd
J. W. Winder, Carrollton, Jeff. Par.,
New Orleans, La. 3tfd
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Who agree to make such hives, and at the prices named, as those described on our circular.

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P. L. Viallon, Bayou Goula, Iberville Par., La. 1tfd
C. W. Costellow, Waterboro, York Co., Me. 1-23
Kennedy & Leahy, Higginsville, Laf. Co., Mo. 23tfd
E. Kretchmer, Coburg, Montgomery Co., Ia. 23tfd
S. D. Buell, Union City, Branch Co., Mich. 3

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BASSWOOD-TREES.

Basswood-trees, 1 to 3 feet high, per hundred, $1.50
Hard Maple " 3 to 5 " " " " 1.50
Black-raspberry plants, 7 different kinds, per hundred, $1.00; per thousand......... 6.50
Address H. WIRTH, Borodino,
3-5-7d Onondaga Co., N. Y.

50 COLONIES BEES FOR SALE.

I have 50 stands of bees for sale, hybrids and blacks, and in the Mitchell hive, 15 frames in hive, well painted, and metal rabbets. I live on the Arkansas Midland R. R., and can ship by R. R. or water via Helena. PETER METZ,
3 8db Poplar Grove, Phillips Co., Ark.

RAPE SEED at ten cents a pound, or 3 lbs. for 25c. The seed is new, and will grow. Address
3d A. J. SHEPARD, Walker, Linn Co., Iowa,

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—The market remains quiet, and does not show much activity. Since September 1, 1885, our receipts of comb honey have exceeded 11,500 crates, and to-day we have on hand about 1500 crates. Buyers and jobbers who bought heavily last fall have not disposed of their stock as yet, which causes the present state of the market. However, we expect a fair demand during February and March. We quote at present: Fancy white 1-lb. caps, 13@14c: 2-lb. caps, 11@12c; fair and off grades, 1-lb. caps, 11@12c; 2-lb. caps, 10@10½c; buckwheat, 1-lb. caps, 10@11c; 2-lb. caps, 9@10c; extracted, clover and basswood, 6½@7½; buckwheat, 5@6c.

THURBER, WHYLAND & CO.,
Jan. 21, 1886. Reade & Hudson Sts., New York.

NEW YORK.—*Honey.*—The market for comb honey continues dull and inactive, and prices are ruling lower. The present cold weather, however, should it continue, may improve trade in a short time. We quote as follows:

Fancy white comb, 1-lb. paper cartons,	13@14c.
" " " " glassed or unglassed,	12@13c.
" " " 2-lb. glassed,	9½@11c.
" " " " unglassed,	11@12c.
" Buckwheat, " " glassed,	9c.
" " " 1 lb. glassed or unglassed,	10@11c.

No change in extracted. *Beeswax*, pure yellow, 27@28c.

MCCAUL & HILDRETH BROS.,
Jan. 12, 1886. 34 Hudson St., cor. Duane St.,
New York.

CHICAGO.—*Honey.*—Sales are quite good at present in both comb and extracted honey. Comb brings from 15@17c, and from 14@15c. The stocks here are very light, and honey is wanted. Shippers should see to the loading of honey in a through car to destination. *Beeswax*, 24@26. Extracted honey, 6@8c.

R. A. BURNETT,
Jan. 20, 1886. 161 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—The market is without material change since my last report. The supply of choice white comb in 1-lb. sections is not large, and I can encourage shipments of such. Quote white 1-lb. sections, 15@16c; large sections or dark, 13@14c; extracted, in barrels or kegs, white, 7½@8; colored, 6½@7c.

A. V. BISHOP,
Jan. 21, 1886. 142 W. Water St., Milwaukee, Wis.

BOSTON.—*Honey.*—Best 1-pound sections, 14@16; best 2-pound sections, 12@14. Slow sale. No demand for extracted.

BLAKE & RIPLEY,
Jan. 21, 1886. 57 Chatham St., Boston, Mass.

CINCINNATI.—*Honey.*—There is nothing new to report on the market for honey and beeswax. An exceedingly slow demand for all kinds, and low prices, make matters very unsatisfactory. Demand would not be stimulated by lower offerings. No change in prices.

CHAS. F. MUTH,
S. E. Cor. Freeman and Central Avenues,
Jan. 26, 1886. Cincinnati, Ohio.

CLEVELAND.—*Honey.*—The market has not changed materially since Jan. 1st, except it exhibits the usual stagnation prevalent at this season. The stock of new 1-lb. sections of white is very small, and prices 14@15c; 2-lb. are in better supply, but very slow at 13@14. Other descriptions are entirely unsalable at any price. *Beeswax*, very scarce at 22@25.

A. C. KENDEL,
Jan. 20, 1886. 115 Ontario St., Cleveland, Ohio.

ST. LOUIS.—*Honey.*—Our honey market is very dull. No inquiry for any kind. Prices normal. Southern, in bbls., 5@5½c. Northern, in cans, 8½@9c., retail. Comb honey, white clover, held at 15@16c, in 1-lb. sections. Dark not wanted at any price. *Beeswax*, 22½@23c; not much arriving.

Jan. 12, 1885. W. T. ANDERSON & CO.,
104 N. 3d Street, St. Louis, Mo.

DETROIT.—*Honey.*—No change in Detroit honey market. Best white comb honey, in 1-lb. sections, 15 cts. Dark, almost unsalable. Extracted selling in a small way from 10 to 12 cts. per pound. *Beeswax*, 25@27c, wholesale. The above quotations in honey are from my actual sales. M. H. HUNT.

Bell Branch, Mich., Jan. 22, 1886.

HONEY AND BEESWAX.

We are now in the market, and will be during the entire season, for all honey offered us, in any quantity, shape, or condition, just so it is pure. We will sell on commission, charging 5 per cent; or if a sample is sent us, we will make the best cash offer the general market will afford. We will handle beeswax the same way, and can furnish bee-men in quantities, crude or refined, at lowest market prices. Our junior member in this deparment, Mr. Jerome Twichell, has full charge, which insures prompt and careful attention in all its details.

Sample of comb honey must be a full case, representing a fair average of the lot. On such sample we will make prompt returns, whether we buy or not. **CLEMONS, CLOON & CO.,**
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GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XIV. **FEB. 1, 1886.** **No. 3.**

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NOTES FROM THE BANNER APIARY.

NO. 74.

HOW SHALL WE MAKE THE MOST PROFIT?

OUGHT not Mr. Doolittle's heading to his article, on page 13, to have been, "Few or many *bees:* which?" instead of "Few or many *colonies:* which?"? It is *bees*, not *colonies*, that overstock our fields. Mr. Doolittle discusses *overstocking*, but not one word in regard to his subhead, "Shall we have a few bees in many hives, or many bees in a few hives?" You know Mr. Heddon, Mr. Dadant, and myself, have been discussing "Small vs. large hives," and when I read Mr. Doolittle's two titles I was, of course, interested, and read the article eagerly, only to be disappointed in not finding a word upon the subject. I fully agree with Mr. Doolittle, however, in thinking that so many bees can be kept in an area that the profits would be greater were a less number kept; but whether they shall be kept in few or many hives, is entirely another question. In my opinion, we lose when we go *too* far in either direction in the size of hives. I would have a hive of such a size that a queen of average prolificness would *fill* the combs with eggs, and *keep* them *full* of brood, during the fore part of the season; but as this question has been discussed at length in the *A. B. J.*, it will hardly be advisable to go into it here. The large amounts of grain, fruits, or vegetables, that have been produced upon an acre as the result of high manuring and much labor, are not proper comparisons for the profitableness of the raising of large amounts of honey from only a few colonies. "Circumstances alter cases," and these cases are entirely different. All products are the result of labor and capital; and not only in bee-keeping, but in all industries, we should strive to secure the greatest profits with the least expenditure of capital and labor. Where "intensified" farming, as it is called, is practiced, is usually where land is high. The largest part of the capital is invested in land, hence it follows that labor is used freely in order that the immense amount of capital may be utilized. But let us go "out west," where "Uncle Sam" will "give us all a farm;" will "intensified farming" pay there? No. When the settler has put one acre into crops, with ordinary care it will pay him better to put the same amount of labor upon another acre (that costs next to nothing), rather than to bestow it upon the first acre. "Circumstances alter cases;" and which is the more expensive factor should be well considered, not only in farming and bee-keeping, but in *all* industries.

The question is something like: Here is an area of honey-producing flora; how shall we secure the nectar, with the least expenditure of capital and labor? or let us put it in a little different form. A man wishes to engage in bee-keeping. He has an unlimited amount of capital and labor; in what proportion shall he combine them? In bee-keeping, capital is the less expensive factor, and should be substituted for labor when possible. As to *how many* bees should be kept in one locality, is a question of overstocking, and is a very difficult one to decide; but when the question is one of many bees and little labor, vs. few bees and much labor, the former is to be chosen.

There is, however, another phase to this question. Many bee-keepers are limited as to capital, and it is impossible for them to secure so many bees as could be kept to an advantage in their locality; such bee-keepers will probably find it to their advantage to employ all the labor *necessary* to secure all the honey that their bees can gather.

I agree with you, friend Root, in advising us to keep our colonies strong, *except* that I would have them strong per *comb;* or, to be more explicit, I see no advantage in *large* colonies, but I want a large number of bees per *comb*.

EIGHT OR TEN FRAMES: WHICH?

As Mr. Buchanan, on page 8, brings up some points that have not been touched in the discussion upon this subject in the *A. B. J.*, it is with pleasure that I reply to them. He must have put some very poor workers into the 8-frame hives the first year, to have received no more surplus, and then had to feed them the next spring. Had he received more surplus from the 8-frame hives, and *then* had to feed the bees, it would have appeared reasonable; but the statement as now given appears to prove *too* much. If there were more bees in the 10-frame hives, then they should have eaten more honey, and needed feeding, just the same as the bees in the 8-frame hives. If there were no more bees in the 10-frame hives, why should they have stored more honey?

It is true, as Mr. B. says, that bees in small hives are more likely to need feeding; but the reason is, that the brood-nest occupies the combs to the exclusion of the honey, which is, of necessity, placed in the surplus apartment. My comb honey, some part of which the contraction method forced into the sections, netted me this last year about 16 cts. per lb., and was replaced in the brood-nest with sugar syrup at a cost of about 5 cents per lb. It is true, that Mr. Heddon is selling his fall honey at 7 cents; but I believe he has explained why he raised extracted honey this year. It was because he had a large stock of empty combs, and wished to utilize them. When extracted honey is raised, there is, of course, but little advantage in contracting the brood-nest; at least, so far as pieces are concerned; but when a bee-keeper finds it necessary to substitute sugar for honey in the fall, in order to winter his bees, it is a *great* point. It may not be advisable for farmers or careless people to use small hives; perhaps they had better not keep bees at all; at least, so far as profit is concerned; but this question is one of considerable importance to the professional bee-keeper.

It is true, that bees in small hives are more likely to swarm; hence small hives are not advisable, for *this* reason, for those who wish little or no increase. The question of swarming vs. no swarming is too large to be handled in this article. I will say this much, however: I have (with the exception of one season, when the harvest came early and was cut short early) secured more honey from a colony (and its increase) that swarmed, than from one that did not. If swarming could be prevented *entirely* it might be an advantage, as an apiary could be left to itself part of the time; but when part of the colonies swarm, and some one must be present all of the time, they might as well *all* swarm.

Mr. B. speaks of the trouble of contracting the brood-nest, disposing of combs removed, returning them again when needed, cost of sugar for feeding, *preparation and cost of feeding*, and the lessened room above the brood-combs for sections. The only valid objection is the one I have put in italics. It is no more work to remove the combs than it would be to remove the same number of combs from any hive when running for extracted honey. The contractors, or "dummies," not mentioned by Mr. B., cost something, about 10 cts. per hive; that would be about one cent a year per hive. It takes no longer to extract the honey from these combs than from any. Extracting-combs have to be stored away for winter, so we will store away these where they are to remain all winter. In both instances the combs must be replaced in the spring. Sugar does not cost so much as the honey that it is used to replace. When every thing is conveniently arranged for feeding, the cost of preparation and feeding, including feeders, will not exceed 5 cts. per hive. Can we not bear this expense, if it will enable us to successfully winter our bees, even if there were no other advantages? The lessened room above the brood-combs is no objection when the bees are crowded for room.

You, friend Root, say that the greatest objection to an 8-frame hive, aside from those given by Mr. B., is, that it could not be made interchangeable with 10-frame hives, when made on the Simplicity plan. Let us first decide which sized hive is the *better*. If the narrow hive is the better, then it is a serious mistake to make any more 10-frame hives. It might not seem so at first, perhaps; but, in *time*, the best will be used. I am aware that it is an advantage if a new thing can be used with an old one, and that the old one will not have to be thrown away; but in a progressive industry like bee-keeping, the old *must* give way to the new, *provided* the new is better. The old box hive *had* to give way to the movable-comb hive, and "'twas ever thus," the *best* will be used, and those who cling to poorer implements because they don't like to throw them away, are left in this race.

WIDE FRAMES AND SEPARATORS.

I should like to say a few words about your review of Mr. Heddon's book; but this article is already becoming quite lengthy. I feel that I must notice one thing, however, and that is the following: "It is a little amusing to see friend Heddon go back and declare in favor of wide frames, and *separators* also, after the way he has denounced them a year or two back. If I were he, I would be a little more mild in denouncing any thing, especially if I expected to change my plans within a year or less."

Can you show, friend Root, where he has harshly denounced wide frames or separators? I have spent half a day in "reading up" what Mr. H. has written upon the subject, going back not only "a year or two," but *four* years, and it seems to me that the remarks of yours are too severe. Away back in 1883, page 315, *A. B. J.*, he says: "Several correspondents have asked me if I considered it advisable to use separators with wide frames. I will reply, that I do. When I run 34 wide-frame supers, I tried omitting the separators. I find that, while the 'case' seems not to need separators to get reasonably straight combs, the wide frames are almost a total failure." In the fall of 1884, at the Northwestern Convention, see *A. B. J.*, page 679, "a vote was taken, and about three-fourths of the members could dispense with separators." Mr. Heddon said: "We have used a large number of one-story wide frames, in supers with separators, and a large number of cases in which no separators were used; and although there are advantages and disadvantages in separators, yet they have nothing to do with the amount of honey stored. Although only one-fourth of you now vote in favor of separators, *the time may come when you will vote the other way.*" (Italics mine.) "If you can produce honey without separators, so that it will suit yourself, your commission man, the consumer, and everybody, all right; if you can not, then use them."

Last May, in GLEANINGS, page 344, was an article entitled "Wide Frames and Separators." Mr. Heddon gives us all, upon this subject, that I have been able to find from his pen in GLEANINGS for the past four years. In that article they are certainly not denounced. Please allow me to quote: "I would rather abandon separators than use them in two-story supers. I do not think there is any system of using separators, equal to the wide frame, *when used one story high*. There are many advantages in the use of separators, and many in the non-use. I mean to continue the use of separators, and am now perfecting a different style of supers which I think will aid us greatly in their quick and easy manipulation, as well as their usefulness."

Please turn to the article, and read the whole of it. I can not find that Mr. Heddon has ever *denounced* separators; he has claimed, and still claims, that marketable combs *can* be secured without them; he has *always* admitted that there were advantages in their use, especially when used in connection with wide frames. He has always opposed wide frames *two tiers of sections high;* but he has freely admitted, that, when used one tier of sections high, wide frames have decided advantages, and has at times been at a loss to know which to use, the frames or his case. Before he had proved the advantages of reversing the sections, he had about decided in favor of the case. The advantages of reversing the sections turned the balance in favor of wide frames and separators. Is there any thing *amusing* about this?

I should also like to say something about "interposing two sticks and a ⅜-inch air-space" in the center of the brood-nest, but must wait until next time.

W. Z. HUTCHINSON.

Rogersville, Mich.

Friend H., I think from what you say, that perhaps I *was* a little severe on friend Heddon in regard to the separator business. I beg his pardon, and I thank you for correcting me. Perhaps it was wide frames to hold two tiers of sections that I had in mind. But I think you will agree to this: That when he adopted his new arrangement of a year ago or more, he decided to abandon separators; for it is almost out of the question to think of using separators with a case made in that way, and I believe the brethren generally understood that Heddon, by adopting that style of case, concluded that the advantage of separators was not sufficient to think of retaining them. Now, however, just as a good many of us are thinking of abandoning our old arrangements, and using the Heddon case so much talked about, he has dropped it and substituted a wide frame with separators. Of course, the wide frames hold only one tier of sections. I suggested that he had, very likely, good reasons for the change; but in view of making such changes, would it not be best for all of us to be a little slow in declaring or even deciding we have got the thing just right where it ought to be? These changes in implements, hives, and arrangements, are very demoralizing, and I don't blame a good many for saying, "I am not going to change any more until I can see some *very* good reason," and that this very good reason shall continue for at least a year or two.

COULD A COLONY OF BEES WINTER IN A GLASS BOTTLE?

A HINT IN REGARD TO MORE VENTILATION FROM THE ENTRANCE.

IN your comments on my article in GLEANINGS of Jan. 15, you ask the above question. Theoretically, if there is any truth in what I believe and act upon, a globular bottle made of thin glass, of a size only sufficient to contain a colony and its stores, the neck pointing downward, and about 2½ inches in diameter, with all except the opening protected by some non-conducting material, would be a perfect wintering hive. Of course, in practice we can not use hives of this shape, nor would I recommend glass as a good material to make hives of.

I do not mean to say that we could confine all the animal heat in such a hive, nor do I think that this can be done in any hive we can use, unless the outside air is of the same temperature as that on the inside. Two bodies of air of different temperatures can not be prevented from intermingling as long as there is a passage between. A good colony, packed as I would have them, will send a constant current of warm air out of the entrance. If openings are permitted in the top of the hive, the amount of heat thus lost will be vastly greater.

I wonder how many of those who claim that bees hibernate, or, in fact, of bee-keepers in general, know how much heat a colony of bees gives off. When the heat is allowed to pass through the top of the hive into the open air, there is no way of determining this waste. When a hive is closely sealed at the top, and well protected from the cold, almost all escape of heat is by means of the entrance. When this is covered with snow, something of an index is afforded as to the amount of waste heat by the melting of the snow. I am a firm believer in the letting-alone policy during winter, and consequently my hives are frequently covered with snow for a month or two. When covered in this way, the snow soon begins to melt away from the entrance, and I have often seen a wedge-shaped space thus melted, the width of the hive, five or six inches thick at the base, and almost as high as the hive. After this quantity is melted, the melting stops, as the snow gets so far away from the entrance that the outcoming air is cooled before reaching it. By careful estimation and experiment I have found that five pounds of snow are often melted by a colony in this way. I am sorry to say that I do not know just how long it takes them to do this. The present winter has not been a good one for finding this out. Speaking from memory, I should say that when the weather continues not much below the freezing-point, this amount may be melted in less than a month.

Now, to melt five pounds of snow requires 400 heat units (pound centigrade). This is an amount of heat sufficient to raise four pounds of water from the freezing to the boiling point, or enough to warm nearly ten and a half pounds of ice water to 100°, the natural temperature of the bee-hive. Remember, this is only the waste heat flowing out of the entrance during a period of certainly not more than a month and a half, and I think not over half that time.

It would be impossible to confine all the heat generated by a colony of bees by any method of outdoor wintering. The plan I have advocated comes nearer to it than any thing else.

Some might say, "Why not close or contract the entrance, and thus save more, or all of the heat?" The difficulty then would be to get rid of the moisture. We should have to run the risk of its ill effects, or employ upward ventilation, and thus waste more heat than by free downward ventilation.

Perhaps we may yet find out how to do it. I intend to keep on experimenting; but in the meantime my main dependence will be on small hives, large entrances, and enameled cloth above, well protected by chaff. 8—J. A. Green, 85—100.

Dayton, Ill., Jan. 21, 1886.

Friend G., you strike on a point that has often been in my mind, and has been a good deal talked about in years past, and I can not now see why it is that we have not made more of it than we have. It is this: Making the hive close and tight, all around, except the entrance, and leave that large enough to give all ventilation needed. The best colonies of bees I ever had were those that were strong enough to send a draft of warm air out of a good-sized entrance all winter long. You remember that this matter is touched upon in the A B C book; and while we are about it, I should like to see the experiment tried, of wintering a colony of bees in a large-mouthed glass bottle, say a two-gallon candy-jar. I believe with you, that it could be done, and I should not wonder if it would be one of the keys to success. The way to do it is to put some foundation in the candy-jar, and get the bees to build it full of comb, then fix it upside down, with three or four inches of chaff covering every part of the jar except the mouth. Leave the mouth open all winter, like a good many suspended box hives without any bottom. It is my impression, that the bees would take care of themselves, even if their stores were not extra. Who will try it?

MANY OR FEW COLONIES: WHICH?

FRIEND C. C. MILLER CONSIDERS THE MATTER PRETTY THOROUGHLY.

On page 22 Mr. Root asks me, "Would it not be better to take a little of the advice Doolittle gives in the present number, and get larger yields from fewer colonies, or else have them scattered more in different localities?" Now, Bro. Root, don't you know you ought not to rile me in that reckless manner? You needn't think, because I'm little, and you have Doolittle to help you, I'll stand *every* thing; so, here's at you both. As you ought to know, from my saying I hauled my bees away in the spring, I did not keep them in one apiary, but in two. That made about 90 colonies in each. Do you think a less number would have done any better? Moreover, my spring count, 179, was only 5 more than I had in 1882, when from 174 I took 16,549 lbs., to which you refer as an enormous yield. I have read Bro. Doolittle's article twice over. It is exceedingly interesting, and a valuable contribution toward the exploration of that region which, he very truly says, is "well deserving of our best thoughts and efforts." From the premises given, however, I do not make all the conclusions he and you seem to make. He says, "There seems to be a growing tendency of late to multiply our number of colonies, rather than see how good results can be obtained from a few." If this means, to possess a large number of colonies, without reference to the profit therefrom, the tendency is wrong: if it means, to multiply our number for the sake of multiplying our profits, rather than see what large yields per colony we can secure from a few, then the tendency is right. It has been too much the case that exceptional instances of large yields from a single colony have been quoted as patterns to be imitated; as, where A, with 50 colonies, gets 500 or 1000 lbs. of honey from a single colony. From his whole apiary he gets 4000 lbs., while B, with an equal number of colonies, gets 5000 lbs., getting from no colony more than 150 lbs. It is well enough to talk about A's big yield; but after all, I had rather imitate B's example. Of late years I have had some misgivings as to some of these large yields from single colonies. Not but that the owners mean to be perfectly truthful, but there are so many ways in which we may be mistaken. A few years ago I had a colony which gave me, if I remember rightly, 194 lbs. comb honey. If you had asked me, I should have asserted very positively that they had no help in any way, more than every other colony, and should, perhaps, been indignant if you had suggested there might be any mistake. I would not be so positive now. Without remembering it, I might have given them some partly finished sections, or, without my knowledge, another colony might have united with them.

There are many circumstances to be taken into consideration in deciding the proper number of colonies to be kept. Not only the resources of the field, but the experience, ability, tastes, and desires of the bee-keeper are to be considered. I believe I would place my own limit something like this: That number from which I can make the most clear money annually, due regard being had to my own enjoyment in the work. I once asked Bro. Doolittle why he did not keep a larger number of colonies, and I think he told me he did not want a greater number than he could care for without outside help. He probably is unwilling to take the extra profit he might have from a larger number, and pay for it in the price it would cost him in the worry the extra help would cause him. I respect his taste in the matter; and yet, another man seems to enjoy the bustle of a lot of hands under his direction, and his taste should be equally consulted. In one respect I am most fully in accord with you, and would like to emphasize the statement, that "the mania for rapid increase is oftentimes a very sad one." One thing bearing on this matter is not generally considered: Where bees are wintered in cellars, a score might be wintered in a given space, where one or two hundred would fare disastrously, and from no other reason, I think, than the greater number. Then the amount of pasturage must be considered; and here, Bro. Doolittle, is another important unexplored region. You refer, Bro. Root, to reports of beginners getting large yields from a few colonies, who afterward fail to get like results from large apiaries. Perhaps the work of beginners is apt to be more fully reported than those longer in the business; but, may not overstocking have something to do with the matter? I am not sure but my ground would be overstocked at some time of the year with any thing more than five or ten colonies. There are from five to eight weeks during apple-bloom and clover, when my bees have all they can do. During the rest of the time they are comparatively idle, although there may be no day when some bees do not bring in something; but the ground is overstocked for perhaps twenty weeks. It may be, that enough is gathered to keep busy five or ten colonies, and I imagine that, with this number, having six months to work in, I could make a pretty big report.

There is one point you make, Bro. Doolittle, that can not be disputed. If a given field yields, say, 45,000 lbs., and each colony uses for its own support 60 lbs. annually (I suppose they would use more than 60), then the fewer bees you can have to clean the field, the more honey you will have as surplus.

When it comes to having large numbers, additional help must be obtained, and comparatively few have the ability to superintend others successfully; so, because a man makes a grand success with just enough colonies so he can do all the work himself, it by no means follows that he would be successful with double the number, no matter how large the field nor how much help he might have. But I'm afraid I'm getting on the wrong side of the question, and must return to the charge on Mr. Root.

In 1881 I had the fewest colonies (67), and the largest average yield (117 lbs.) I have had in several years. In 1884 I had the most colonies (200), and the smallest average yield (54) in the same time. Now, which was better for me? It sounds better to say, 117 lbs. average than 54; but when 54 gave me a total crop of 2877 lbs. more than the 117, that settles it in favor of the many colonies and the small average yield. It is, however, quite possible that the best number lies somewhere between these two extremes, and that, with 175 colonies in 1884, I might have had a larger crop than with the 200. Certain it is, I do not care to have more than, if as many, as 100 colonies in one apiary. Now, Mr. Root, don't you see I don't need Bro. Doolittle's advice? and don't you wish you hadn't "riled" me?

TWO CHIPS.

On page 43 a statement passes unchallenged, that "moist air is heavier than dry air." Is this so?

My sub-earth ventilating pipe is 4-inch tile laid 3 or 4 ft. deep, and 100 ft. long. Much to my surprise, I have pretty strong proof that a longer pipe would not bring in air one degree warmer.

C. C. MILLER, 179—340.

Marengo, Ill., Jan. 21, 1886.

No, friend M., I don't wish I hadn't "riled" you, a bit; in fact, I would do it again right off now, if I knew just how to do it as well as I did the other time. I am very much obliged for the facts in regard to sub-earth ventilation, and I am surprised also; but I propose to use the information, not only for ventilating bee-cellars, but for making a greenhouse that will grow hardy plants and vegetables all winter long, with no artificial heat whatever. "Father Sun" and "Mother Earth" are to do all the heating, and you see if I don't get good results. Very likely I shall have to use shutters over the glass in extreme weather.—Now, in regard to this matter of many or few colonies, I believe, after all, you have considered the matter about as thoroughly as myself or Bro. Doolittle, and I think it will pay us all to read your article several times over. In our business of selling bees and queens, we make it pay to keep 400 or 500 colonies in one location a part of the year, although we have for several years back been reducing them to about 200 each fall; but as we buy something like 100 colonies from our neighbors each spring, no doubt it would pay us to winter over 300; so you see it makes a difference whether a man raises honey alone, or bees and queens as well as honey; and from our standpoint of view it seems to me it would be a pretty good thing for you, friend M., as well as honey-producers in general, to be prepared to sell bees, at least occasionally, when the season happens to favor the production of bees rather than the production of honey. See what our friend Oliver Foster did, even in selling bees by the pound, at a great deal less figure than the usual prices.

OLIVER FOSTER'S REPORT FOR 1885.

HOW HE SUCCEEDED, IN SPITE OF UNFAVORABLE WEATHER.

WE notice a marked variation in the reports of the honey crop in Iowa for the past year, which demonstrates that one year a few miles may separate good honey-producing localities from poor ones, whereas the next year these dividing lines may not exist, or the blessings may fall in other fields.

In this locality the past season has probably been the most unfavorable one of the ten in which I have been engaged in bee culture. In the fall of 1884 I packed in chaff, 280 colonies of Italians on their summer stands, in three apiaries. About 50 of these were three and four frame nuclei, and a large proportion of the others were made up of united nuclei.

After one of our severest Iowa winters, followed by a very cold late spring, the first of last May found me with 250 colonies in average condition, and with a fair prospect of selling them all before the honey harvest began, as per the editorial warning on page 601. I had bought 12,000 sections, and was planning to have them filled; but as many of the friends had lost bees heavily, and were anxious to have more, I decided to leave the sections in their boxes, run all three apiaries for increase, and let them *go*, and they *did* go, many of them before the increase came. By withholding advertisements all orders were filled promptly, except a few that included dollar queens before they could be furnished. We had no honey-yield worthy of mention, until white-clover bloom. The clover had winter-killed badly, except in sheltered places, and it yielded about one-fourth of a crop. Basswood did no better; many of the trees did not bloom at all. Had it not been for a fair yield from late bloom, many colonies would have been short of winter stores.

My account with the bees for the year foots up as follows:

To supplies, including circulars, postage, advertising, use of hives, buildings, machinery, horse and buggy, etc.	$236.00
To hired help	110.00
Total expenses	$346.00
By 16 colonies increase (full count)	$ 80.00
" 249 " sold (average $3.54 each)	881.40
" 60 queens by mail	59.60
" 1000 lbs. extracted honey (8 cts.)	80.00
" 300 " comb " (15 c.)	45.00
Total	$1146.00
	346.00
Net profit	$800.00

I now have 296 colonies in two apiaries, all packed on summer stands, and they could not be in nicer shape, apparently, at present writing.

I have been experimenting extensively on the wintering problem as well as on the different lines of summer manipulation, making improvements, as I think, each year, and I intend to publish my methods whenever they can be considered perfected, for it is demonstrated facts that we want, rather than theories. 10—OLIVER FOSTER, 250—296.

Mt. Vernon, Iowa, Jan. 13, 1886.

Why, friend Oliver, I had some way got it into my mind that you were a *small* bee-keeper, and here you are with 296 colonies, and doing nicely, even during a dull season. Best of all, you seem to be pleasing your customers right straight along; and, friend F., it does my heart good to have you speak of honey-yields as blessings from God. To be sure, they are blessings; and if more of us were in the habit of taking them that way, I shouldn't wonder if it would be safer for God to send more of them.

OUR OWN APIARY.

THE CONDITION OF AFFAIRS UP TO DATE.

ABOUT a week ago, during a warm spell, our bees were examined and were found to be in good condition. Yesterday Jan. 27, while strolling through the apiary I noticed that the entrance of one of the hives was spotted considerably, indicating dysentery within. The slate showed that this was an imported Holy-Land stock. At the beginning of the winter season I had noticed that these bees were very uneasy, and after a fall of snow they flew out even then. The snow, everywhere in the immediate vicinity of the hive, was spotted with little holes made by their chilled bodies. The apiarist says they acted like that last year, and that they barely pulled through the winter.

CLUSTERING OUT IN JANUARY.

Toward evening of the same day my attention was called to another hive where there was quite a bunch of bees hanging out at the entrance. Peering down into the hive after lifting one edge of the cushion up, we found that the bees were scattered through the interior of the hive, when seemingly they should have been quietly bunched up. Lifting one end of each frame separately, showed that there was scarcely 3 lbs. of honey, when, about two months ago, they had 25 lbs. of choice sealed honey. When put into winter quarters, inasmuch as it was a large swarm, it was supposed that they were in prime condition for wintering. Their restless condition, coupled with the fact that they had consumed such a large amount of stores, seemed to indicate that they did not then and had not enjoyed that quiescent state, or hibernation, as W. F. Clarke calls it.

BREEDING IN CHAFF HIVES IN JANUARY.

Jan. 28.—To-day the swarm mentioned in the above was overhauled to ascertain the trouble. It was a rousing big swarm when put up for winter, and the apiarist found that they had been breeding heavily. This accounts for their consuming so much honey; and when the weather warmed up they just crowded out at the entrance for more room.

POLLEN NECESSARY FOR BROOD-REARING.

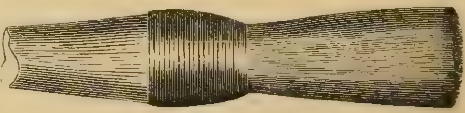
A careful examination of each comb showed that considerable pollen had been stored in the bottom of the cells, although the combs, when given them in the latter part of the fall, apparently contained nothing but choice honey. The presence of the pollen, together with the fact that it was a strong colony, well packed, undoubtedly induced the brood-rearing; and inasmuch as the honey was running short, the bees were probably compelled to consume more pollen than was consistent with healthful wintering. As a proof of this, the neighboring hives were considerably spotted. This would also account for their uneasiness. A report of these will be given later.

ERNEST R. ROOT.

BRUSHES FOR PAINTING BEE-HIVES.

ALSO SOMETHING ABOUT LOW-PRICED BRUSHES FOR OTHER PURPOSES.

TWO or three years ago we wrote to one of the largest brush-manufacturers in the East for prices of brushes suitable for bee-keepers. At the time, they declined to give us figures, but referred us to dealers in the large cities. I objected, and proposed to give them an order as large as the city jobbers; but as our institution was something not laid down in the books, they preferred not to sell to us direct. Of late, however, they have modified their views a little. I do not know whether it is because the Home of the Honey-Bees has grown bigger, or because the general depression in business has made manufacturers more anxious to open trade in almost any avenue. However, they sold me the brush I wanted. Providing I would take five gross at a single lot, they would let me have them so I can offer them to you at 10 cents each. Below is a picture of—



OUR TEN-CENT PAINT-BRUSH.

Perhaps I should not call this a paint-brush, but it does very good service for many kinds of painting. It is really a small-sized paint-brush or a large-sized sash-tool, and is very convenient for putting on mucilage, labeling honey-jars, moistening sections when they are too dry to fold otherwise, and many other like things. If wanted by mail, add 3 cts. each extra for postage. We can furnish larger-sized paint-brushes at correspondingly low prices. Our best one is worth 50 cts.; by mail, 8 cts. each extra.

WINTER TEMPERATURE OF BEES.

A REPLY TO G. M. DOOLITTLE'S ARTICLE, PAGE 190, MARCH 15, 1885.

MR. DOOLITTLE has laid his fellow bee-keepers under an obligation of gratitude by his thermometrical observations in regard to the degree of heat maintained inside a cluster of bees during the winter, as reported on page 190. Though his experiments have conducted him to a conclusion unfavorable to my views concerning hibernation, he has my thanks none the less; and I hope to show him, before I have done, that he has decided against hibernation on insufficient evidence. At any rate, I shall try to do so.

At the outset, however, let me say that the *American Apiculturist* is in error when it states, concerning entomologists, that "not one of this class can tell us any thing reliable about the winter temperature of the bee-hive." Huber, Reaumer, Newport, and others, have given us information, which, considering the sources of it, must surely be regarded as "reliable." Mr. Newport especially, made numerous experiments to ascertain the temperature of the interior of bee-hives in winter, which he recorded in a valuable paper published in the *Philosophical Transactions*, entitled "On the Temperature of Insects."

Huber tells us, as the result of his observations, that "the heat in a well-peopled hive continues 86 or 88 Fahrenheit, when it is several degrees below zero in the open air." He also says, that bees "then cluster together and keep themselves *in motion* in order to preserve their heat;" and that, "in the depth of winter, they do not cease to ventilate the hive by the singular process of agitating their wings before described." Mr. Newport was of the opinion that Huber was altogether in error in assigning a heat of 86 or 88 Fahrenheit to a populous hive, which, he contends, has its temperature sometimes (though rarely) lower than that of the freezing-point, and in the winter months does not average more than from 7 to 9 degrees above that of the atmosphere, or about 52, though merely tapping on the outside of the hive, by exciting the bees, will, at any time, greatly increase the heat: in one instance, Feb. 2, to 102°, when the temperature of an adjoining hive was only 48.5°; and it is from this circumstance that he supposes Huber's error to have arisen, as the mere excitement caused by introducing a thermometer is sufficient, to raise the heat to the point (86° or 88°) which that observer mentions. Mr. Newport admits that hive-bees are never strictly torpid, but *pass the winter in a state of hibernating sleep*, liable to constant interruption by considerable variations of external temperature or accidental excitement.

Mr. Doolittle's experiments prove the extreme difficulty, if not utter impossibility, of ascertaining the normal temperature of the interior of a bee-cluster; for the moment the bees are disturbed and excited, the heat begins to increase. It is natural to suppose that the bees at or near the outside of the cluster will be cooler than those at the center of it; yet they may be, and no doubt are, warmer than the air outside the cluster, owing to the transmission of heat from their companions who occupy an inside berth.

If Mr. Doolittle had noticed my article in the *American Bee Journal* of January 14, 1885, headed, "Chilled Bees are Not Hibernating," he would hardly have made the remark that I call "stiffened" bees "hibernating" bees. I there said, "Chilled bees are *not* hibernating bees, but bees undergoing the process of being frozen to death. In the early stages of this process they may be restored by warmth; but unless thus restored they will die. They are not on the road to death when they hibernate. This is nature's expedient for preserving them alive." I must ask Mr. Doolittle to read the whole article, from which the above is a brief extract.

My belief is, that bees, in a climate like ours, "pass the winter in a state of hibernating sleep," as Newport expresses it. Unable, before going into this state, to take food enough to last them any great length of time, they must necessarily rouse up at intervals to feed. I think they usually do this when spells of mild weather come. But, if the demands of hunger compel them to wake up and eat when the surrounding atmosphere is cold, they have recourse to that faculty of generating heat which Huber mentions, and with which all bee-keepers are familiar. During the present winter (1884-5) we have had scarcely any warm spells; but I have noticed that whenever we did have one there was a hum of activity in my supposed-to-be hibernating hives. This hum I have taken to be the sound of the dinner-gong.

"A well-peopled hive," as Huber calls it, is, no doubt, much warmer than the outer air, even when the bees have fallen into their hibernating sleep. How much I do not know, nor is it easy to find out, because the least disturbance of the bees raises the heat. But I am inclined to think there must be excitement before the temperature becomes 86 or 88°, as noted by Huber. I have observed the phenomenon of warmth under the cushion and just over the cluster of bees, mentioned in the editorial notes to Mr. Doolittle's letter, and so, doubtless, have most bee-keepers. We want to find out, if we can, what that degree of heat should be to enable bees to hibernate comfortably. Then we must try to ascertain the size of cluster, and dimensions of hive, necessary to secure that degree of heat.

I suppose if we could investigate a hibernating bear we should find the outer fur pretty cool; but the roots of the hair imbedded in the hide, would be warmer. Then if we could sink the bulb of a thermometer down to the region of the heart we should, no doubt, find blood-heat there. A cluster of bees, when balled and knotted up as tightly as possible, may perhaps be of the nature of one living entity, the outer bees in a state similar to that of the bear's fur, and the central ones warm as Bruin's heart, and, like that, diffusing heat and life to the whole cluster.

Mr. Doolittle thinks it "impossible for bees to hibernate when they must burn honey enough to warm a temperature of 16 below zero to 63 above." To which I reply: 1. When it is 16 below zero out of doors, it will not be so cold as that inside a chaff-packed hive with sawdust cushion on top, irrespective of heat generated by the bees. When it is 16 below zero in the open air, as it has often been this winter, I have found that it was not nearly so cold inside my wood-shed, which is only a single-boarded building. 2. It would not take much of a lamp to raise the temperature inside a hive, such as Mr. Doolittle experimented upon, to 63 above zero. Is it too much to believe that the respiration of 20,000 bees would suffice to do it? If it is, then we may add to this Huber's theory of motion inside the cluster to make up the deficiency. It is thought by some that there is a constant change of place between the central and outside bees, and this movement may suffice for the purpose. 3. The creation of this heat regulates the consumption of honey, but does not necessarily conflict with the theory of hibernation. Hibernation has its degrees. In the bear, it is profound and complete; with squirrels, it is partial. They rouse at intervals, and feed; so do bees. How often they wake, and what quantity of honey they consume during their waking spells, depends, I suppose, on the degree of cold they have to withstand.

The second paragraph of the editorial notes on Mr. Doolittle's letter states my idea of hibernation to a dot. The naturalist Reaumer describes in a similar manner what he calls "a sort of torpidity" which he regards as the normal condition of bees during the winter season. He says: "In winter, while it freezes, one may observe without fear the interior of hives that are not of glass; for we may lay them on their sides, and even turn them bottom upward, *without putting any bee into motion.*" He refers, of course, to old-fashioned box hives. He adds: "We see the bees crowded and closely pressed one against the other: little space then suffices for them." This harmonizes exactly with friend Root's account of his "ball of bees about the size of a large apple," which unlocked itself and expanded so that "they filled the hive pretty tolerably." I say with friend Root, "I should like to have my bees winter in these tight little balls; at least, it seems to me that is what we want." This is what I intend by hibernation; and I maintain, that when we find out how to bring this about every time, we shall have mastered the winter problem.

Speedside, Ont., March 23, 1885. WM. F. CLARKE.

A KIND LETTER FROM CALIFORNIA.

QUEENS TAKING THEIR WEDDING FLIGHT WHEN ONLY 24 HOURS OLD.

IN my little mountain home, many miles away from church privileges, with only towering mountains, rushing waterfalls, and Lytle Creek roaring in its rocky bed, to remind us of Him who made them, your Home talks come to renew and strengthen all that is noble and right.

The year that has passed has been the fallow year to the California bee-keepers. I did not take out a pound of honey; but the bees are in good condition, with ample natural stores. There was no rain from Dec. 21st, 1884, until March 7th, 1885, and but little after that, so there was a dearth of bee pasturage. In March, bees did fairly; plenty of brood. Then came cold weather, which stopped the honey-flow, and lack of moisture did the rest.

I had two natural swarms. I raised some queens for home use. One lot of cells was so large that I watched them closely; on the 14th of June, about 10 A. M., I saw the first emerge. I had given the cell to a queenless colony. The young queen was black, and very large. The next day, about 2 P. M. I saw her on the top of the hive, just returned from her wedding flight, with a filament attached to her abdomen. I took her carefully in my hand, and examined her, lifted the cover, and put her on top of a frame, where the bees began to caress her, and in two days I found plenty of eggs. I was very much delighted, for I never expected to see a queen returning from her wedding flight. I find her bees are hybrids, and very industrious.

THE SUN EXTRACTOR, AGAIN.

The sun extractor for rendering wax is in common use here. I have used it for that purpose four years. It is made like the one described in GLEANINGS. If one sash will not gather the sun's rays so as to have sufficient heat, put another over the first, and that will be *sure* to work.

THE MOTH WORM IN CALIFORNIA.

As Mr. Israel says, people at the east know nothing about the bee moth. It takes hot dry climates to show what they can do. They have never troubled my swarms much, as I watch them; but if one tries to save combs, then comes trouble. In less than a week, five frames had seemingly a thousand cocoons. The space between the frames was packed solid, and I had sulphured them too.

MRS. W. W. WILSON.

San Bernardino, Cal., Jan. 2, 1886.

Thanks for kind words for the Home Papers, my good friend.—Your fact, to the effect that a queen may take her wedding flight the day after she is hatched, seems pretty direct; but still there is a possibility for a mistake. Your queen may not have left the hive at all, and another one resembling her may have alighted on the hive. Under such circumstances she would probably be well received, and commence laying as you suggest. As others, however, have reported that queens do sometimes take their flight when one day old, it may be so, though it is very rare. In such cases we should suppose the queen was very fully matured before emerging from the cell. Your California climate may have something to do with it.—In regard to the solar extractors, I can not yet feel quite satisfied that two thicknesses of glass will give more heat than one. Have the friends tried both ways, enough to be sure that the second sash is an advantage?—Very likely the moth are worse in California because you have no zero freezes to kill them out of combs not protected by the bees.

BEE-KEEPING IN KANSAS.

SOME REASONS WHY THE BUSINESS CAN BE CONDUCTED SUCCESSFULLY IN THIS STATE.

THE season of 1885 was a very poor one, being too wet until August, which, as usual, was a little dry. Spanish needles began to bloom Sept. 1, when a heavy rain fell, which destroyed all the early blossoms. From the later bloom, which lasted about ten days, the bees filled their hives (which were destitute of stores), and I took from four colonies 110 lbs. of nice section honey in 1-lb. boxes.

I began with 8 colonies — 7 strong and one weak. I increased to 14, all in good condition for winter. I think I have learned a valuable lesson this season, which is this. If I had fed my bees early in the season, to stimulate, I should have had 100 lbs. more honey to have sold. I sold my honey at 20 cts. per box, at our little town of Edna. I shall try a little extracted honey next season. The people here think that extracted honey isn't pure; but I believe I can persuade them to use it in preference to comb honey, by getting a few copies of T. G. Newman's "Honey as a Food and Medicine," which I can hand to my retailer to give to his customers.

In regard to the honey-producing plants of this section of Kansas, I will say we have no bloom after apple (excepting a few prairie flowers) until the first of Sept., when the Spanish needle and goldenrod bloom. For the last year only has white clover been sown, and then only in door-yards. I'm trying to persuade the farmers to sow the seed in their pastures, as it catches very quickly on the prairie sod. Basswood grows finely here. Two of my neighbors have several small trees growing, which look nicely for the time they have been planted—2 years. I intend to plant a few hundred as soon as convenient.

I think this will be a fine country for bees when we get plenty of white clover and other small honey-producing plants growing. One great advantage in bee culture here is the winters being mild, although we have some severe cold spells which last but few days—never so long as to prevent bees from flying during any month in the winter. As to chaff hives, I think they are of little use here, as the Simplicity, with division-board and good chaff cushions, affords ample protection. I have been handling bees for four winters here in this State, using only the duck quilt as protection, and I have never lost a colony. But I think bees might be more profitably wintered by the use of chaff cushions.

This fall I prepared my bees for winter as follows: 8 colonies have 6 frames each; 4 have 5, and 2 the full 10, all of which are well filled with sealed honey. I use the L. frame and Scovill Simplicity hive. Those frames containing the most pollen I stored away for spring feeding. My bees are all right up to date; but at present we are having very severe weather—the coldest since I have been in the State.

Now, friend R., I want to thank you for your ably edited journal; also the many able contributors for the valuable information imparted.

6—W. E. POTTS, 8—14.

Edna, Kansas, Jan. 11, 1886.

FLORIDA.

THE ADVANTAGES AND DISADVANTAGES CAREFULLY CONSIDERED; SOMETHING FOR THOSE CONTEMPLATING GOING THERE.

HAVING received quite a number of letters, which still continue to come from persons in the Northern States, inquiring about bees in Florida, the price of land, health, and other things pertaining to Florida, I shall attempt to answer such questions as would likely interest many of the readers of GLEANINGS. In the first place, I had better state that I have been here only one year and one month. Nearly every letter contains the question, "Can I make a living keeping bees?"

In this locality—high pine land, with a considerable number of orange-groves bearing, together with what palmetto there is, an expert might keep himself and small family from the sale of honey alone; but I would not or could not advise any one with a family to pull up stakes and settle in a high pine region, relying on honey alone from his bees to keep him. The orange does not yield honey profusely, but it blooms long—longer than white clover, I believe. The saw-palmetto did not yield much honey last season; besides, it can not be found growing abundantly on all high pine land. It grows on flat and low land. With my present number of colonies of bees I hope to be able to give an interesting report next spring in regard to the above-named honey-plants in this locality. I should think the hammocks and low lands along rivers would be much better for bees than high pine, although such places probably would be deprived of the honey-yield of the orange. But people settling on these kinds of lands, if I am not mistaken, are liable to have malaria. If you want to get as far as possible from malaria in Florida, you must reside on high pine land; then, if you have never had it before coming here, you are not likely to get it. I draw this from my own experience, observation, and conversation.

Another class of land for the bee-keeper is the coast region—Atlantic and southern Gulf coast. I understand these latter places are *excellent* for bees; but about getting the honey into market at a good price, I have not had any information. Nice comb honey, in 1-lb sections, retails at twenty-five cents in Orlando, but extracted honey from the coast sells very slowly at forty cents per quart, or about 12½ cts. per lb. Now, to sum up the location for bees, oranges, and health, I do not think it possible to get one single location *excellent* for all three.

As far as I know, it would be cheaper to bring bees along, if possible to do so, than to buy here; for people having bees do not want to sell them until after the spring honey harvest; yet a few can be bought at eight to ten dollars per colony. If native bees in box hives can be found for sale they usually sell at about three to four dollars per colony. At present I do not know of any.

I was told before coming here that a swarm issuing any month of the year could gather enough honey to keep it. This, I am quite certain, is a mistake, and should be corrected. I am confident that a swarm hived on fdn. the first of this month would have starved to death, for it has been too cold for bees to fly much, and the last recent freeze stopped brood-rearing in all my colonies. Last January was too cold for bees to gather honey, except a *very few days*. Had I hived a swarm on fdn. last July or August, I believe it would have perished before the fall flowers bloomed. I think it is important to know about this, as it shows the honey resources of the locality. Bees will gather enough honey in October to winter on, and rear brood ready for the spring honey-flow.

Five acres of land is all anybody needs to grow oranges and keep bees, and it sells at all prices—from $1.25 to $500 per acre—owing to the prospects of the town. In three miles of Orlando, which is considered the most prosperous place in South Florida, it sells at about $100 or more per acre for first-class orange land. Further away, $60 to $100. Second-class orange land brings about $25.00 to $50.00 less than above. In new settlements, with fair prospects for railroad, good orange land can be purchased at $10.00 to $25.00 per acre. Hammock lands are the best for vegetables; but oranges also are grown on some of these lands with less fertilizer.

Another question from correspondents is, "If I can not get a living keeping bees, what can I do till oranges bring an income?" For various reasons this question is puzzling to answer, because our

Creator, in his wisdom, arranged it so the most natural way to procure a living is to till the soil, and our Florida soil is quite poor. Although a few seem to get some profit out of gardening, yet I think it would be a vexation of spirit to the average farmer, unless on hammock land. Sweet potatoes do well; the squash family grows well; cabbage does fair to well. Everybody does not farm, even in a farming country; and, bear in mind, it is as easy, if not easier, to get a living here, aside from tilling the soil, as in any country. If you have a little loose money —or, rather, considerable—buy town lots, build dwellings, and rent them. Every house in Orlando is rented at a big rent as soon as built. I presume it is unnecessary to say, if a person has no capital, and is unable to work, he should not come to Florida, for the "bread fruit" does not flourish here. The cost of living is some higher than in Ohio, but not so much higher as one might think. I think all the canned goods sell as cheap here as in Ohio. Experience has taught me this: If you are an invalid, and are coming here, bring your woolens and flannels with you. And now let me say, in conclusion, that I have tried to give the plain naked facts; that I have taken more pains, I believe, to show the "*stuff*" of the framework than the veneering with which it is covered; that I have had a cramped feeling, for fear I should occupy too much space in GLEANINGS, but I must utter this: That keeping bees and growing oranges in connection, to me is most fascinating; and he who kneels to the living God may deny himself of many of the comforts and luxuries of life, and still be happy following these two pursuits in this glorious climate of Florida.

Orlando, Fla. L. W. GRAY.

FROM 56 TO 125, AND 8500 POUNDS OF HONEY.

94 LBS. OF HONEY FROM ONE SWARM IN ONE WEEK.

I HAVE had considerable experience in bee culture for the last fifteen years or over. I had bees in the Langstroth hive in the summer of 1869. I then resided at Pendleton, in the county of Prescott, Ont., an excellent locality for bees. That year I collected 1000 lbs. of honey from four two-story hives. This was before I ever saw a bee-journal, or heard of such a thing. I have had some ups and downs since I commenced; still, I have been able to hold my own well, up to the present time. I give your publications the credit of the greater portion of my success. I have shared at times somewhat in Blasted Hopes, but generally caused somewhat by my own neglect.

The season of 1885 I commenced with 56 hives, 10 of which were very poor. I increased to 125, and collected over 8000 lbs. of extracted honey. I have used and wintered bees on frames of nearly all kinds between the L. and the Jones two story and single-story, and the size I like best is a frame 10½×14 inside measure, 8 frames with two-story, gotten up similar to the Simplicity hive. This is a cold climate, and I have been induced to believe that a deeper frame than the L. is a more suitable one for our cold long winters. I do not pretend to give a 16 years' experience in bee-keeping in this letter.

There is one more fact which I wish to add to the report of last season. During the second week of July I obtained from one first swarm, put in empty combs, 94 lbs. of beautiful thick honey. The swarm was hived on Saturday at noon, and the following Saturday noon I removed all the combs from the hive. The queen had deposited eggs in two combs only. This was the third time I extracted during the week. Said first swarm came from a box hive which remained clustered for a long time, as box hives often do, until the box was almost covered with bees.

DON'T EXTRACT TOO CLOSE—A SUGGESTION.

The bees were well rested during their stay in the old hive. This gives me the idea that bees can make up for lost time. I don't believe that it pays to work bees right up to the end of the honey season. If hives are closed in giving them only the number of combs required to winter on quite early in the honey season—that is, after the swarming fever is over—the bee-keeper suffers no loss. For instance, about the middle of July last, after I obtained 8500 lbs. of honey from my 125 hives, I felt sure I should have no more swarms, so I took all combs from each hive, except those intended for the bees to winter on. I then prepared them for winter by closing them up with division-boards, top frames off, covers on tight, and sawdust behind division-board. At this date each hive had a good queen. The question is, Have I lost? did my bees gather honey-dew? I don't think bees will under such treatment. But if I had extracted up to the last of August, all that I could take from them, and left them almost in a state of starvation for a month or so before feeding up for winter, I should expect nothing surer than that my bees would become demoralized.

I have never practiced feeding very much, except when a scarcity of honey comes in mid-summer, or immediately after frost kills the flowers in the fall, which is generally before the middle of September. Then I feed all stock that require winter stores, until they have sufficient. I feed as fast as they will take it up, and then stop. I don't believe that feeding to stimulate breeding after the flowers cease to yield honey and pollen, pays. Bees will not always breed at this season; and if they do, I think bees raised under such circumstances are much inferior to those raised under the natural impulses. Queens bred late in the fall are worthless; worker-bees raised late in the fall are equally worthless — at least, from my experience I think so.

JAMES MOFFATT.

Maxville, Ont., Can., Dec. 25, 1885.

PERFORATED ZINC FOR THE PREVENTION OF ABSCONDING SWARMS.

A GOOD REPORT FOR THE ALLEY DRONE AND QUEEN TRAP.

I WANT to tell you of a little experience that I have had with Alley's combined drone and queen trap, and see if you will not agree with me that, in point of convenience and labor saving it should be ranked along with the honey and wax extractors and smokers. On the 14th day of March, 1884, my son and only child came home from college, sick. His disease was typho-malarial fever, which lasted him 72 days, during which time my bees increased from 20 to 48 colonies by natural swarming. Had it not been for two of the above-named traps that I had, it would have been impossible for me to have secured half the swarms, and at the same time nursed and taken care of my sick child. As it was, when a swarm would begin to come out I would run and put a trap at the entrance, and by the time I could get my empty hive in place with a few frames of brood from the parent stock in it, and the foundation all right, the bees would miss their queen and come back pellmell in search of her, and thus enter the new hive at once. In about 20 minutes the bees were hived, and went to work at once without further trouble or ado, and I was back in the house with my sick boy. In hiving them thus I moved the old hive to a new location, and put the new one in its place, and let the queen run in with the bees. It was a beautiful sight to me, to see my golden Italians come pouring in a stream, so to speak, from the top of a tall elm-tree into their new hive, without any climbing of trees or sawing off limbs, thus saving disfiguring the symmetry and beauty of a favorite shade-tree. I had no help, except a neighbor's little boy. After doing the chores at home he would come over and stay a few hours in the middle of the day to watch my bees, and tell me when they were swarming. I do most truly and heartily thank Mr. Alley for his invention, and I would about as soon think of going back to the old gum hive as doing without the combined drone and queen trap. We are having a very mild winter so far here in Texas. It has not been cold enough to form ice worth speaking of but once, and it all melted long before night. We had a nice rain this evening, with a little hail. MRS. S. E. SHERMAN.

Salado, Texas, Jan. 1, 1886.

Mrs. S., I am very glad indeed to get this report from friend Alley's drone-trap. I know friend A. has spent a great amount of time and money in experimenting, with the end in view of getting a device that will do just what you say his has done. I suppose, too, you will excuse me for suggesting that it was not an expert, either, or am I making a mistake? At any rate, my good friend, you made the device work nicely, and surely our veteran bee-folks ought to be able to do as well.

EGG-LAYING OF QUEENS.

SOMETHING FURTHER ON THE SUBJECT, BY OUR GOOD FRIEND CHARLES DADANT.

IN GLEANINGS for Jan. 1st, Prof. Cook writes that the queens know what the sex of their eggs is before laying, and that the dimension of the cells has no influence on the sex, which depends on the arbitrary will of the queen. He admits that some young queens lay drones in worker-cells, but he thinks that it is because they do not know yet how to manage the delicate apparatus of the spermatheca. To support his theory, he adds that Sir John Lubbock has noticed that the female wasps are provided with a wider knowledge, even, than the bees; for not only do they know the sex of their offspring, but they take care, also, to prepare a greater number of spiders in the cells destined to receive female eggs, than for male eggs, since the female wasps are larger than the males.

For at least twenty years I have practiced the replacing of drone comb by worker comb in the brood-chamber. It is an easy matter now, since we have the foundation; but before this invention I used to buy all the comb of dead colonies, at my neighbors'. The result was, that my colonies raised very few drones. Occasionally, and very exceptionally, a queen was found laying some drones in small cells; but certainly more than nineteen queens out of twenty did lay but very few drones in some occasional drone-cells; yet these queens did not seem dissatisfied with my depriving them of their option of laying drone-eggs. We have had a number of queens which did not lay 300 drone-eggs in their whole life; therefore it seems to me that a queen, in good health, lays drone-eggs in drone-cells because they are greater; and worker-eggs in worker-cells, because they are smaller; and that, if my queens had had the volition of laying drones, they would have laid drone-eggs in worker-cells, as some did at times.

That the dimension of the cell has some influence on the sex of eggs is so generally admitted, that Mr. Cook himself, in his scientific bee-book, recommends, with all the bee-writers, to replace the drone comb in the brood-chamber with worker comb, "not to get myriads of those useless gormands."

If the queens, while laying, were moved by the desire to lay drones, as most writers pretend, our replacing of drone comb by worker-cells would be useless. As for the young queens, I have often noticed that, in the first weeks, some lay more or less drone-eggs in worker-cells; but I have, every time, noticed that these young queens were of small size, and that this irregularity disappeared as soon as they were fully developed. Therefore it was the size of these young queens, which, being too small for the size or the depth of the cells, had compelled them to lay drone-eggs. The worker-cells had acted on these small queens as the drone-cells do toward large queens. Then in this case also the sex was determined by the dimension of the cells, and not by the volition of the queens.

But there was a point which seemed to overthrow all these inferences. The combs of the wasps have all their cells of about the same dimensions; yet the mother-wasps raise males and females; then the dimension of the cells has no influence on wasps, and the difference of the sexes may be the result of the volition of the females. Such remarks, which came several times to my mind, were a cloud on the above theory, and Mr. Cook has just dispelled it.

The cells where the male wasps are raised are not provided with as many spiders, hence they are *not so full* as the cells where the females are raised. Are Messrs. Cook and Lubbock quite certain that such difference in the fullness of the cells, or in the length of the vacant space in the cells, is not the cause of the difference in the sex?

When the eggs of animals are mature they don't wait, but drop. Suppose that, when a mother-wasp prepares a cell to receive her egg, the weather ceases to be propitious for her hunt, or that the spiders are not easily found; the cell is provided with only half the spiders needed, yet the egg can not wait, and has to be laid on these scant provisions. Why not admit that such a condition of the laying does not afford impregnation, and that the result is a male wasp? Who could say that this theory is not as rational as the one which endows the mother-wasp with the knowledge of her future offspring, and of its comparatively smaller or greater needs? To sum up: As we can control the laying of our queen by replacing the drone combs with worker combs; as the young queens lay drone-eggs in worker-cells as long as they are undersized; as the conditions of the cells in which the female wasps lay are different, and according to the sex produced; as no proof exists that any animal knows and determines in advance the sex of its offspring, I think that it is rational to conclude that the external conditions which are present at the laying of the queen have a positive influence on the sex produced. I should gladly see some discussion raised on this interesting topic. **CHAS. DADANT.**

Hamilton, Ill., Jan., 1886.

Friend Dadant, you really surprise me by the depth of reasoning you have given this very wonderful subject. You suggest many things that I hadn't thought of; and although I am left more in a maze than ever before, I think you have opened up a great field for investigation in a way it has never been opened before, to my knowledge. I know that removing drone comb is a great factor in preventing the production of useless drones; but it didn't occur to me before that this was a powerful argument in favor of the old Wagner theory — that the size of the cell might determine the sex of the offspring. I should be very glad to hear from Prof. Cook again after he has considered the facts you place before us.

VARIOUS MATTERS.

HOW MUCH PAIN IS THERE IN THE STING OF AN INSECT?

ON page 856 of GLEANINGS for Dec. 15, 1885, I see friend Root wishes to know more about the testing of the water in that well which gave an average temperature of 42°. I will tell you all I know about it. The man owning it is one of the oldest bee-keepers in our town; and as it is natural for the younger bee-keepers to visit the older ones, it so happened that I used to go often to see this man to talk bees, twelve to sixteen years ago. Being thirsty one hot day in July while there, I asked for a drink, and he went to the well and drew the "old oaken bucket" full of water, and handed me a glass of it. As I began to drink I stopped and spoke of its coldness, for it seemed to me equal in coldness to any ice water I had ever drank. He then spoke of the facts I gave on page 856; and to prove the matter to me he took a thermometer off a nail close by, which was showing some 90° in the shade, and placed it in the bucket of water, lowering the same into the well.

"Now," says he, "we will go in the bee-yard for a few minutes while the exact temperature is being registered in the well," which we did; and when we came back the thermometer showed between 42° and 43°. It was just such a thermometer as you sell on your 20-cent counter, and I supposed it was accurate. If I can think of it I will take my spirit thermometer along the next time I go that way, and make a further test of it.

HOW LONG A BEE LIVES AFTER STINGING.

By what I see in GLEANINGS I find an effort is being made to find out how long a bee lives after having left its sting; but so far I think the reports only point toward confinement being the cause of the death of the bee, rather than the loss of the sting. If a single bee is confined alone it will rarely live a great while; but if a dozen or two are put together with their queen they will live for a much longer time, but not so long as if they had their liberty. Now, I wish all the little folks (or big ones either) who try the experiment to see how long a bee lives after stinging, to put such a bee in with a dozen or two other bees which have a queen, and then tell us the result. While they are thus experimenting I will tell you what I know regarding the matter.

A year ago last August, while preparing a queen for shipment, one of the workers stung my fingers in getting it in the mailing-cage, which is a thing that happens occasionally with me; but always before this, and since, I have gotten them out of the cage, or secured them before they were in. But this bee was so spry that I could not get hold of it, and so I concluded to let it remain. This was at about 10 o'clock A. M. The caged queen and bees were left on my shop-bench all that afternoon, and till the next morning at 6 A. M. (or 20 hours), when the cage was wrapped and gotten ready for the seven-o'clock mail. At this time every bee in the cage was alive and smart, the one that left its sting in my finger being as lively as ever, as I could easily find it by the thread-like attachment which still hung to it. About this time I saw an account in the *Bee-Keepers' Magazine*, by J. Hasbrouck, if I mistake not the paper and the writer, telling of how a Syrian bee stung him, after which it was so persistent in trying to sting again that he caught it and put it in a cage with some other bees which he chanced to have caged. This bee he said lived a week when he let it have its liberty again. I may have made a mistake in some of the minor details, as I quote from memory. If Mr. Hasbrouck's eye meets this, will he not tell us all about it?

SMOKING BUMBLE-BEES AND HORNETS.

On page 636, R. Robinson speaks of "jugging" bumble-bees, and says that smoke "would do no good" in quieting them. The reason must have been that friend R. did not smoke them in their nest. Smoke does little or no good on cross honey-bees when they get in the air, and the same can be said of any kind of bees, hornets, or wasps; but take them in their nests, and a little smoke quiets them as effectually as need be; at least, such has been my experience with both bumble-bees and hornets. I have removed several objectionable bumble-bees' nests from about my premises by the use of smoke during the past ten years, and at one time I had quite an experience with a hornets' nest. This was about ten years ago, when I still managed the farm. One day I wished to sort some sheep, so I yarded them under a shed which I knew contained a large yellow-jackets' nest behind one of the braces. As I went in among the sheep I noticed the hornets thick about the nest, but thought they would not molest me; but as I reached out my hand to take hold of a sheep, one of them struck me, stinging at the same time, and, oh how it *did* hurt! I had got used to the sting of the bees, so it hurt me but very little; but this foreign poison affected me so I nearly fainted away, and I nearly lost the use of that hand and arm for four or five days, it was so swollen and inflamed. Well, I went to the shop, got the smoker, and after putting on veil and gloves I went cautiously to the nest, and before one was aware of aught save safety, I was pouring the smoke into the nest in a thick volume. The result was, that they began in a few moments to leave the nest, and, after hovering around for a few moments, they left, and I never saw one about the nest afterward. I should judge there was nearly a pint of them, as it was a very large nest.

Borodino, N. Y. G. M. DOOLITTLE.

Friend D., I have all along had a notion in my head that I had seen bees in the hive with this thread-like appendage, indicating that they had lost their sting; and I shouldn't have been surprised had it been decided that they would live as long without a sting as with one. Perhaps the juveniles will need assistance from their fathers and mothers in making tests, by placing the stingless bee in a cage with some other bees. While shipping queens we can easily put in a bee or two destitute of stings, and then ask the recipient to report.—Your experience with hornet-stings is much like mine. One day I dropped a coal out of the smoker on my hand. Supposing, at first, it was a bee-sting I let it lie until I could conveniently remove it; but I mentally decided that the bee was stinging rather milder than usual. When I saw that it was a coal of fire that had burned a blister, I mentally noted down that I had, by accident, positive proof that the pain of a bee-sting is much more acute than the pain of leaving a burning coal on the bare flesh. But we are so used to bearing bee-stings with a martyr-like spirit that we hardly recognize how much fortitude it does require. While I am about it, it is my impression that there is more pain in a bee-sting than in having our flesh burned with fire, or cut with a surgeon's knife. By force of habit we shudder at the knife or fire, while we have learned to take the bee-sting as a matter of course. Well, I got stung by a yellow-jacket; and as I had been taking bee-stings as a matter of course, I perhaps took the yellow-jacket in the same way. But I was considerably surprised to find that it was a different kind of medicine, having a good deal more "pungency," as nearly as I can express it. I was prepared for the familiar sensation of a bee-sting, but not for the different sensation of a yellow-jacket, and therefore I made as much fuss about it as I used to when a boy in the huckleberry swamps.

HONEY IN PLACE OF SUGAR FOR MAKING CORN BREAD, ETC.

MRS. HARRISON OFFERS A RESOLUTION.

FRIEND ROOT:—While I was getting dinner I had a revelation; and with your permission I'll tell the women about it—the *men* needn't listen.

I was stirring up corn-bread, lick-at-a-cut, and I thought I'd put in a spoonful of sugar, to make it a little sweeter and richer, you know, when my eye rested on a bowlful of honey. The other fellow within said, "Why not put in a spoonful of honey?" Yes, why not? Mr. Muth produced evidence at the late convention at Detroit, proving that honey is sweeter than sugar and syrup, and why not use it? Worth more than sugar? Suppose it is; it takes time to sell honey and buy sugar, and why not use it and save tariff?

The new year is a general time of paying off old scores and making good resolutions, and I put this motion before the house:

Resolved, That we (honey-producers) boycott sugar and syrup of all kinds, as far as practicable, using, in their stead, honey, the purest of sweets, believing that this course, and this alone, will bring forth good to ourselves, and the land in which we dwell.

"What is sweeter than honey?" is an open question since the time of Samson, and is as yet unanswered. Bees lived upon it for thousands and thousands of years, and no complaints are recorded of its not being good enough, until the last decade. Now it is advocated to take away the honey from the bees, and give them sugar syrup instead, benefiting the sugar market to the detriment of honey. Are we going to teach the bees that their own production is not fit food for them, thereby imitating the wealthy manufacturers of oleomargarine, butterine, and glucose? No: if they can't live on their own production, let 'em die. Are we going to extract their honey, and go to the great labor of feeding back to them in return sugar syrup, and let the honey go begging for a market at four and five cents per pound? Not much, if the court knows herself."

Now let us feed our bees the dark, rich, good sweet honey, and not depress the market with it. What the bees can not consume, use in pickling meats, preserving fruits, making vinegar and ginger-snaps. Put it into the mince pies, doughnuts, bean-pot, where beans are baking, in lieu of molasses, and make it into taffy for the children.

Dr. Mason, of Ohio, had square blocks of candied honey at Detroit, that were far superior to any confectionery that I ever tasted. He gave me some, and I ate and ate, and I could not find a place to stop; and if I had not been taught manners when I was a child, I'd been eating yet. If I drank tea and coffee (but I don't, our water is so good) I'd sweeten some with it, and see if it would be bad to take.

It is a mistaken idea, that honey was given to us to ship by carloads to large cities. Stuck-up city folks don't even know it is there—don't see it; they telephone to their grocer for silver drips, honey-dew, and pure maple syrup from the woods of Vermont, while Chicago has a larger sugar camp than all New England.

Now let's have less of this foolishness; eat all we can, pay every debt we owe with it, make it legal tender; sweeten all our pet charities; the Christian home mission; foundlings' home, orphans' home, old-ladies' home, and, by all means, don't forget the shoe-blacks; see that your minister's table is well supplied; and if your doctor doesn't eat honey, don't take his pills any more. In England, sugar is so cheap they have been experimenting to see if it would not be economical food for stock; and isn't it worth our while to see if honey wouldn't be excellent food for the old cow? MRS. L. HARRISON.

Peoria, Ill.

Mrs. H., I second your motion; and if I were president I would ask all in favor to please say aye. As the price of honey now is getting so near the price of sugar, all that is needful is to decide that sealed honey is as wholesome as stores of pure sugar. Below we submit a paper from another friend who has got the same ideas in his head you have. He is a little more vehement about it than you are, it is true.—In regard to blocks of candied honey, if you were taking GLEANINGS so long ago you may remember that was once a big hobby of mine; but I got over it for the simple reason that nobody seemed to care very much about it. There is another thing, too, you may not discover. Blue Eyes and her mother found out that these blocks of candied honey when melted made the nicest kind of confectionery. By all means, let us try to introduce honey everywhere, even to our domestic animals, as you suggest. Horses are fond of sweets, and a great many times it seems to encourage them to give them a lick of sugar. Now, wouldn't a lick of honey help them to take an interest in our plans and our work in the same way?

SUGAR SYRUP FOR WINTER STORES.

IS IT ADVISABLE, ALL THINGS CONSIDERED?

FRIEND ROOT, do you know that we are building up the sugar-trade at the expense of the honey-producers of this country? The universal law is, to provide first for our own house, and then, if we have any thing to give, we can help the sugar-men. We blame the newspaper men for saying that we feed the bees sugar syrup, and then sell it for honey. I for one don't see how they can very well help saying what they do, as long as all of the bee-journals and leading bee-men advocate the feeding of sugar syrup. I wish I could tell how many times in the last year you have said, in your foot-notes, "Feed sugar syrup." It is very embarrassing to me when I go to the city to sell honey, and begin to show my samples, to have the merchant look up, with significant grin, and ask me what I fed my bees. I have 1400 lbs. of nice white comb honey that I have been unable to sell. Our home market is glutted with honey; and the worst of it is, that it was sold for less than the best grades of sugar bring. I for one have fed the last pound of sugar, unless necessity compels me to. If my bees run short next spring I shall feed section honey before I buy sugar. My experience is, that bees fed well-ripened honey will winter just as well as those fed on sugar. Bees fed on honey last fall (1884) wintered much better than those not fed. I have fed some colonies this fall on a poor quality of last year's honey, and we shall see how they tally in the spring.

Friend Root, you remember that a few years ago you rode the grape-sugar hobby until your hobby was besieged and demolished by solid facts; and the sooner your granulated-sugar hobby suffers the same fate, the better it will be for the bee-keepers of the country. If the hundreds of thousands of pounds of sugar fed to the bees were left where it belongs, and the bees were fed on honey, the market would not be glutted, and we should get a fair price for our honey, and there would be a call for it. A man not far from here fed sugar syrup this fall to get partly filled sections filled out, and then sold it for honey. It isn't all gold that glitters. Some bee-keepers have got it in 'em bigger than a woodchuck. Unless there is a change in the administration in bee affairs, I am going to go it on back numbers, and let GLEANINGS live on carp.

You remember how you mourned over the wreck of your grape-sugar hobby, and there is one thing certain—that sugar feeding or bee-keeping has got to go down. Are you aware that the best grades of extracted honey don't net the producer as much as we have to pay for the poorest sugar? and then feed sugar? Never—no, sir; I'll let 'em die first.

Give my best wishes to Ernest. I wish him Godspeed. 9—GEO. A. WRIGHT, 55—95.

Glenwood, Pa., Jan. 15, 1886.

"SUCCESS IN BEE CULTURE."

PROF. COOK'S OPINION OF HEDDON'S NEW BOOK.

EDITOR GLEANINGS:—I know you too well to even doubt but that you, like myself, will believe and read with great pleasure and satisfaction this *brochure* from our friend Heddon. From the very nature of the case, my book gives prominence to the scientific aspect of bee-keeping, and to such practical questions as are more closely related to general science. You, as an editor and dealer, have ready access to the people, and know just what they are feeling after, and must constantly be working to give them better and cheaper implements, and so the A B C has its special mission. But our friend Heddon, as a large and experienced producer, is emphatically a practical man, and is dead in earnest in his search for better and cheaper methods. As one of our ablest, most successful, most studious bee-keepers, we all expected his book to be replete with valuable facts and suggestions, and we are not disappointed.

My brother said to me the other day, just after completing the reading of this book, "I have received a large number of valuable hints, and some way they are so in the line of my own experience that I feel certain they will prove practical and very valuable." I have read the work with great care, and I feel that no wide-awake apiarist can spend 50 cts. more profitably than in securing this book, and so I am prompted to write this notice.

The general appearance and mechanical part of the work, and especially the clear, terse, and forcible descriptions, will meet no criticism from the intelligent, practical bee-keeper. The first part of the book is not greatly different from like portions of other similar works. Mr. Heddon and his anonymous "friend" explain what actual experience proves most valuable with them, and do not obscure and puzzle with descriptions of many things and methods. While this plan has much to commend it, we must still remember that this is a great country; and in so intricate an industry as bee-keeping, what is admirable in one location may be worthless in another. This caution is, however, repeatedly urged in the work.

We are specially interested in the chapter on hives, and the explanations in regard to the securing of comb honey. The former has been a matter of long and earnest study with the author, and his success in the latter makes him an authority. Surely no one will say that his hive, his method, or his manipulation is copied. For the past two years I have been experimenting with this reversing business, and am fully convinced of its excellence; and though I had no time to plan or speculate on a reversible hive, I had expressed the opinion and belief that it was a desirable implement, and sure to come. I have little doubt but that Mr. Heddon has given us a desirable improvement, and I shall try it the coming season with full assurance of success, and of improving old styles and methods. The contracting of the brood-chamber at times, I know to be very valuable. This ready means of its accomplishment will commend itself to those who have studied and thought in this direction. The honey-board and bee-spaces, no one will abandon who has given it a fair trial. With the ease of reversion and contraction, the bee-spaces and honey-board, and ability to at once invert sections, we have comb-honey production reduced to a science.

There are, however, some things to criticise. We did hope our friend would outgrow his morbid notions about "swelling our ranks," and "specialists," before he wrote this valuable work. We are sure the increase of demand has more than exceeded the increase of supply. Wife tells me, that during the war she paid 60 cents for very poor cotton cloth, while the best sells to-day for 7 cts. In 1870 the same cloth was 18 cts. per yard by the bolt. Since I have kept house, fifteen years, sugar has declined more than one-half. Thus honey is no exception; and does not Mr. Heddon and everybody know that high prices make brisk trade and eager buyers? True, people did run after honey fifteen years ago, and so did they after fruit and all commodities. Do they to-day? As long as I know of scores of amateur bee-keepers who are securing pleasure, health, and profit, from their bees, I shall still take issue with my friend.

There are a few minor points, like function of drones, stimulative feeding, etc., that I feel to criticise; but on the whole the book is admirable, and should, and I trust will, be at once in the hands of every enterprising bee-keeper in the land.

Agricultural College, Mich. A. J. Cook.

I believe, friend Cook, I can stand with you in every thing you have said. Every bee-keeper who wants to be up with the times should read Heddon's new book.

"SUCCESS IN BEE CULTURE."

FRIEND ROOT'S CRITICISMS.

After what we have heard from others regarding our little book and the new system of management for comb honey, and new hive adapted thereto, your remarks on page 45 may have a wholesome tendency to prevent our becoming vain. I suppose we are all fond of praise. I believe we all ought to be. I hope never to sink so low as not to feel a thrill of pleasure when receiving that praise which I have endeavored to merit.

Or who would even care to do brave deed,
  Or strive in virtue, others to excel,
If none should yield him his deserved meed,
  Due praise, that is the spur of doing well?
For if good were not praised more than ill,
None would choose goodness of his own free will.

I believe it is neither honest nor wise for us to feign indifference to the good opinion of others, or their candor in expressing that good opinion. I believe with the poetYoung, that,

The love of praise, howe'er concealed by art,
Reigns, more or less, and glows in every heart;
The proud, to gain it, toils on toils endure;
The modest shun it but to make it sure.

Still, we do not expect praise from every one. I do not now call to mind the history of any person who did, or even endeavored to bring about any reform, either in social, moral, or business life, but that made opposers, and sometimes enemies thereby. Greville tells us that "those men who are commended by everybody must be very extraordinary men; or, what is more probable, very inconsiderable men."

The above is not said with a belief that in your remarks on page 45 you endeavor to "damn with faint praise," as Pope says; yet after we have endeavored to present the best we know, both in mechanical construction and manipulation in the apiary, looking from our standpoint it seems as if you had misconceived something in your forced, hasty review of the book and new hive; and as these subjects are just now greatly interesting many readers, and have been paramount with me for more than a year, I ask for space for a fair and candid explanation.

I appreciate your sympathy regarding the trouble we have with the engravers, and thank you for your words of praise for the author, and am glad you did not say the book was not worth the price asked. I have seen many essays upon apiculture, that I considered worthless to any one, and worse than worthless to many; but I never saw a book devoted to our business that was not worth many times more than the price asked.

You say you "think the book should be read in connection with other works," and give your reasons for so believing, both of which are entirely correct; and I thank you for the reasons given, than which nothing more commendatory need be said on that point. You say, that to you the main feature of the work is the new hive. Were the book handed to me a stranger, I should look at it just as you do; 18 of the 228 pages are devoted to that subject; and if any reader should infer by your remark that the book was a part of the new hive, rather than a description of the new hive being a part of the book, I would call attention to father Langstroth's work, and the further fact of the proportion of importance of the hive as compared to all else related to bee culture.

You next say the new hive is to throw the old one (*i. e.*, our modification of the Langstroth) entirely aside. If you mean in principle, that is just the way it looks to me; but if you mean that sentence to be taken literally, in its broadest and most extravagant sense, for the benefit of some of your readers, please allow me room to explain. I have tried to exercise care not to say any thing that might lead any bee-keeper astray.

It is not human to be always right; and whatever I may have said that tended to lessen the income of any bee-keeper I deeply regret, and assure you that my intention was exactly the reverse.

I do *not* advise any one to exchange a good hive for a better one, in a rash and hasty manner. But few of my present 450 colonies are in the new hive, and I shall make the change only as fast as economy will warrant. My thousands of straight all-worker combs in reversible L. frames will not be sacrificed. This thought should have been in the book; but we shall be thankful that our journals may supplement our books, as my little work is intended to supplement the more comprehensive works of others. Is it strange that the little "Success," like its author, should be a specialist?

You speak of your thoughts of years ago of a case without frames, with top and bottom bars for many of the purposes of my new hive. These same thoughts I entertained during the evolution of the new hive; but I found that, to make the system complete in *all* cases, the combs should be movable.

You say it is a little amusing to see me go back and declare in favor of wide frames and separators. That statement amuses me. I presume you have been too very busy to have noticed that in my writings for papers I have favored them some two or three years when used one story, upon the tiering-up plan. I was driven from their use, as well as the hundreds who went with me, from our experience with them in two-story supers. I was led to the use of them again some four years ago through the solicitations of Mr. Oatman, and announced my success and pleasure with them as fast as experienced. I must change every week, if 'tis necessary to progression; but I think you have covered me over a little too deep in this instance. You did not mention the peculiar features adapting the horizontal parts to reversing in two different ways. One, by having a half bee-space on either side of the frames in each case and the honey-board, and of having all of the bee-space on one side, pushing the frames through at each reversion.

Yes, this shallow hive is not only "splendid for shipping bees," but owing to its depth, weight, character, and fixedness of the combs and the cases, it is splendid to move anywhere about the apiary, or in a repository, as well as to the railroad station. I now come to your objection to the tiers of series of shallow combs; and I must say that I can not believe that you have had experience upon this point. From the standpoint of my experience, it astonishes me that any one should think that queens will not breed rapidly in shallow combs. I feel sure that this is the echo of the same frightened tones that were loudly heard when father Langstroth took his grand step from box hives 18 inches tall to his "dangerous shallow hive." You speak of "less than 5 inches of comb depth." My combs are only ⅛ inch less, and my experience has firmly convinced me that I can take two tiers of combs, no more than three or four inches deep, and all of 24 to 30 inches long (to get capacity), arranged with the "sticks and spaces" as mine are, and, by the *interchanging*, can encourage breeding faster, with less expense, than can be produced in any other way with any depth of combs; or I will just let the two cases alone, and agree to equal in brood any other form of hive, all other influences being the same. We know this by hundreds of experiments; and friend Bingham, withh is 25 years' experience with colonies, in hives containing eight combs 4½ inches deep and 22 inches long, believes that, in these combs, brood is produced faster than in any other form.

I have used one of his hives eight years; and as far as my observation goes, on the one hive, I would say the shallower the better, for brooding.

Do you forget how our queens often produce twice the brood in two or three tiers of L. frames (passing honey-boards and perforated bottoms) that they will in one tier, even though that one be large enough to hold all the brood, if it were all concentrated?

Do you forget the rousing swarms from old box hives full of cross-sticks, with the combs all in jags and pieces, which have oft and repeatedly been praised for the winter passages they create? You did not mention the adaptability to contraction, so highly prized by friends Hutchinson, Doolittle, and others, bringing out the fact that only one section or brood-case is used during the greater part of the year.

A WORD ABOUT MY PATENT.

Regarding the originality of my invention, you have spoken quite correctly in one sense, yet I fear you have left a wrong impression. I knew that closed-end frames were old; also that, though I was an original inventor of screws for tightening frames, others were original in the idea before me, and that it is not patentable.

I am also aware that I am not original in using frames around bee comb, nor of honey-boards of some kind, nor of using wood for bee-hives. I don't believe there is a man in the world bright enough to make an improvement in hives, harvesters, sewing-machines, watches, and, I might say, nearly every useful article known to man, without using old parts mainly. If he has one new feature, or a valuable combination of old ones that will carry into effect a new and useful system, he does well, and at once commands my respect, and the earnest attention of the Patent Office. All, yourself among the number, have credited to me a new and original system of management, and the new hive is a peculiar combination of parts and principles intended to be best adapted to working that system, and that combination is what we have endeavored to secure by letters-patent. If the new hive and peculiar system of management are worthless, a patent can do no harm; if useful, should I have no part of the value thereof? In my chapter on patents I endeavored to make these points clear. If my reasoning is unsound, I should thank you for correction. If I have not already given enough of value to the public to amount to my full share in the line of presents, I here ask you to publicly tell me so.

I shall be pleased to send you a complete hive, and enjoy seeing some accurate illustrations of it. Wouldn't it be well to allow me or friend Hutchinson to explain its workings, and the system of management adapted to it, we and my students being the only ones who have passed it through the crucible of practical experiment?

Dowagiac, Mich. JAMES HEDDON.

Friend H., I shall be very glad to have you write an explanation to the engravings after I have had them made; in fact, I greatly prefer you should do so, as I, of course, have had no experience as yet in using such a hive with bees in it.

THE STINGLESS BEES OF MEXICO.

THEIR MANDIBLES A MEANS OF DEFENSE.

I THOUGHT it might not be uninteresting to your many readers to have a short story concerning the little stingless bee of Mexico; and if you will bear with me I will tell you what I have learned through the many travelers whom I have seen and conversed with on this to me very interesting subject. I have a brother who sojourned in the sunny clime of the State of Sineloa for a little more than one year. He says they are very numerous. He says he was out in the woods shooting birds, called by the natives chichilacs (a bird something like the guinea in size and habits), and when they had fired their guns off, and were reloading, his companion said to him, "When we get our guns loaded we will have a bait of honey."

My brother was surprised, for he had not, during all his stay in that country, seen either bees or honey; but when their guns were reloaded his companion looked him straight in the face, and, smiling, kicked a small chunk of wood with the toe of his boot, and, bursting it open (it being hollow), to his surprise it contained between one and two quarts of the most beautiful and delicious honey it had ever been his good fortune to see and taste. The honey was stored in combs constructed of wax, and were in every particular just like the combs of our honey-bees, except the cells were very small. He describes the bees as being not larger than common house-flies, and marked something like yellow-jackets.

After having once seen the bees, he had no difficulty in finding more than 100 swarms during that day. He says he counted 25 swarms in the hollow roots of one wild fig-tree. Afterward he often enjoyed the luxury of eating the honey stored by these interesting and wonderful little bees. Other travelers give a similar history; and all say, that, though the bees are stingless, they are not left without courage and means of defense. Their mandibles being sharp they can bite in a manner that is "more forcible than pleasant."

The Mexicans, who live in our town, often talk to me about the *colmanus* (pronounced *cole-mah-noos*), as they are called in the Mexican vernacular. They say they are "*muy brava;*" that is, they are very brave. I hope ere long to be enabled to visit that country, and study the habits of that wonderful little insect.

Tempe, A. T., Jan. 11, 1886. JOHN L. GREGG.

Friend G., we are very much obliged indeed for the very valuable information that you give in regard to these little bees that don't sting; and we place $10.00 to your credit for the article, to help enable you to make further researches in this matter. The same bee, if I am correct, has been tried here in our northern climate, but they don't seem to stand the winter. Do you think the honey would sell in our markets—that is, does it compare favorably with the honey of our native bees? Do you think they would work in movable frames? Perhaps the matter can be tested better in their native clime, and I will willingly pay you for the time and trouble required to test the matter, if you are willing to undertake it. If your brother had no difficulty in finding more than a hundred swarms during that day, it seems to me that locality must have been a wonderful field for modern bee culture. If you could send us a piece of the comb by mail we should be very much obliged indeed. May be you can send us some bees in a queen-cage, either dead or alive.

FEEDING BACK NOT PROFITABLE, AND WHY.

FEEDING 3500 LBS. OF EXTRACTED HONEY TO GET IT INTO SECTIONS.

ON turning to page 443, GLEANINGS for July 1, 1885, we find a communication regarding the feeding-back of extracted honey for producing comb honey. Bro. Hutchinson seems to advise the use of separators, and announces that the bees will otherwise even bulge the combs, and build projections and little mounds upon the surface of the combs. He has also met some incidental troubles in feeding back for sections. I have had some three seasons of experience in this feeding-back business, but more extensively the past season. We would say that no separators were in use, and never have our bees produced a finer lot of comb honey than was the one produced by this feeding-back method during the past season. The combs were bright and clean; the sections were filled. There was a few sections which were very slightly bulged. There was not one mound or projection, to our knowledge, upon the surface of any of the combs. We shall be glad to give you our opinion as to why feeding back is unprofitable. Here is the whole business: Twenty of our strongest colonies were selected for this feeding-back purpose. The 20 colonies would not have exceeded 200 lbs., or an average of 10 lbs. per colony to each brood department at the commencement of feeding back, which was comparatively near at hand, Aug. 17, 1885. Many large feeders were made, holding 25 lbs. each. Two sets of sections were placed on each hive, and no more. To the above 20 colonies was fed 3500 lbs. of extracted honey, or an average of 175 lbs. per colony, in 35 days. The total amount of comb honey received from the 3500 lbs. was only 1250 lbs., or 62½ lbs. per colony all in one-pound sections. The total amount for the 20 brood departments was 800 lbs., or 600 lbs. of the 3500 lbs. of extracted honey stored in the 20 hives. Thus the consumption for the 20 colonies in the secretion, or forming of wax scales, and for brood-rearing, evaporation, etc., is that enormous total of 1650 lbs., or 82½ lbs. per colony. To some of these colonies was fed perhaps nearly 150 lbs., ere the first 54 sections were ready to come off. Only they who have tried this experiment know what difficulties one must encounter by turns, the scores of exasperating stings, and the imperious robbers, with their exciting movements and the taking off and refilling of each feeder. All this is certainly enough to disgust one in feeding, to say nothing regarding the loss in the operation. The increase on these 20 colonies is nearly 100 per cent; and as they were used mainly for building up late colonies, this is quite an item.

A. F. UNTERKIRCHER.

Manchester, Mich., Jan. 8, 1885.

Friend U., you have given us the report of a very valuable experiment indeed; but, why take so many colonies? You will see by the experiments I give in the A B C book, that much of the honey will be saved by making two or three of the colonies do the work. Perhaps, however, this would have been impossible with so large an amount as you had to feed back And, by the way, the results of your experiment will be a good fact to furnish the newspapers that are accusing us of feeding cheap syrups and calling it honey. Counting time and all, it probably will never pay anybody to feed sugar, even if it would make nice honey, and I very much doubt if it ever has been done to any extent worth mentioning. I have noticed exactly what you say about robbers' exasperating stings, and the unnatural aspect of affairs induced by this kind of wholesale feeding. It seems to me I never in my life encountered any stinging, or any thing about bees, so terribly ugly as when feeding to get sections filled. The bees themselves seem worried and unnatural; and if the weather is very warm, it seems just about out of the question to do any thing about keeping robbers from pushing their way into the entrances of these hives containing large feeders.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER II.

FAMILY TALKS ON BEES.

THE morning after the bees had been removed to the parsonage, Mr. Meek called Jane and Tommy into his study for a talk.

"Now," says he, "you have bees to care for; but, what do you know about bees? Tommy, you may answer first."

"Well," says Tommy, "bees are living things. I think they are called insects, but I am not sure. A great pile of them live together in a box, or nail-keg, or, when wild, in the woods they live in hollow trees. They make honey and wax, and sometimes sting people. Jimmy Brown told me that in every hive there is a king-bee, a great big long bee, that bosses the other bees, and makes them do just as he wants. I guess that is all I know about them; only that those who keep bees manage in some way to get honey from them. Some people kill the bees with brimstone, as Mr. Brown was intending to do with ours, and thus get their honey; but other people can get their honey without killing the bees. I do not know how they do this; but I want to learn, because I do not want to kill a single bee if I can help it."

Mr. Meek then asked Jane to tell what she knew. She replied, "I know very little more than Tommy has told you. I am sure bees are insects. Early this morning I went out to look at our hive. I found two bees dead before the entrance. I brought them into the house, and looked at them through our magnifying-glass. My teacher says, 'Insect means, to cut into, and is applied to certain living things because they seem to be nearly cut in two.' I saw that the heads of those bees seemed almost cut off; and back of where their wings are joined to their bodies, they are almost cut in two again; so I feel certain they are insects. I also learned in some place, that it is not true that bees have a *king*, but they *do* have a *queen*. She is the only truly female bee in the colony. She does not boss the other bees, but merely does her part in the colony, which is to lay all the eggs that are laid. Then I do not think bees make honey; God makes it come in flowers, and the bees only gather it. I also know that bees swarm; when there are too many bees in a hive they divide, and part go out to form a new colony. When they come out they fly around for a time, and then gather in a bunch on some tree or limb, where they look like a large ball. If their keeper sees them come out, and puts them in a hive, they are likely to stay; but still, sometimes they leave his hive, and go to the woods. If he does not see them they will remain for a time on the limb, or wherever clustered, and then depart to the woods. That, I guess, is all I know about bees; but I should like to learn more about them."

Mr. Meek laughed a little as he replied, "I see you know as much about bees already as many men do who have kept bees for years; but there is still much for you to learn. If a man wants to raise horses successfully, he must study about horses; if he raises hogs he must understand them; and I assure you that no man can manage bees successfully unless he understands them. I want you to learn what you can about bees before next spring. Many years ago I read about a minister named L. L. Langstroth, who had studied much about bees, and who had written a book on the subject. I bought his book, and was well pleased with it. Here it is, and I want you both to read it carefully. For two years I took a farmers' magazine which came once a month. I noticed in each number a page or two devoted to bee culture. I carefully preserved all the numbers; here they are. I want you to hunt up in each one the pages on bee-keeping, and read them carefully, and bring to me any thing either in the book or papers you do not understand, and perhaps I can explain it to you."

The children gladly accepted the book and magazines, and began to peruse them. For a time, at least, much of the talk at the minister's table, when strangers were not present, was on bees and honey. We might for a little listen to some of their talks.

Mr. Meek said, "Well, children, what about bees to-day?" Jane replied, "In reading I find the word *apiary* very often; but I do not know what it means."

Mr. Meek replied, "*Apis* is the Latin name for bee; apiary means a bee-yard, and comes from that word."

Tommy asked, "Is our yard an apiary?"

His father replied, "I think hardly. If we should call a single colony, and that a weak one in an old nail-keg, an apiary, we should be putting on too much style. But I hope, if our bees live, to see you and Jane owning enough colonies to call our yard an apiary."

Jane asked, "If our bees increase until we have a great many colonies, perhaps fifty or one hundred, will they all belong to Tommy and me?"

Her father replied, "Yes, certainly; Mr. Brown gave them to you and Tommy, and I intend that you shall keep them and all their increase. My reason is, I want to teach you to work for yourselves. In a few years, almost before you know it, you will have grown up, and will have to work for yourselves; so I want you to commence now, and learn how to work and do business for yourselves. As you are going to do business, you need a book to record the business you do. Here is a small blank-book which I do not need. It will answer for the present, and I want you to record in it every item of expense and income. You will own these bees together; that is, you two will be a firm, or company, doing business together. Now, by what name shall this firm be called? The large brick store in town has on it, John Morgan & Brother, which means that John Morgan and his brother Samuel are a firm doing business together. Just so, Jane and Tommy Meek is a firm now formed to do business in bees and honey; and what shall we call this firm?"

Tommy replied, "Call it the firm of Jane Meek & Brother."

Mr. Meek wondered that he did not say the firm of Tommy Meek & Sister, which is what many boys would have said. Taking a pen, he wrote in the back of the blank-book, in a large hand,—

ACCOUNT-BOOK
OF
THE FIRM OF
JANE MEEK & BROTHER.

He then said, "Now that the name is settled, tell me what you are learning from reading the book and papers."

Jane answered, "We are learning many wonderful things, things I never should have thought of unless I read them. Bees are very strange insects, and do some strange things. In May, June, or July there are often forty thousand bees in a hive. Just think of it—*forty thousand!* But there are not so many during fall and winter; and in the spring some colonies have very few."

"Yes," says her father, "sometimes colonies have not a single bee in the spring. They continue to grow fewer in number, until there are none at all. Tommy, have you learned how many kinds of bees are in a hive?"

"Yes, sir, there are three kinds—the queen, a large long bee; the drones, large bees, but not long like the queen; and the worker, the small busy little fellow that gathers the honey and stings people. The queen has a sting, but does not sting people. When she meets another queen she fights with and stings her. The drones have no stings. You can catch one and handle it as you would a fly. I should like a colony all drones, then I should not be afraid to work with it."

"But, Tommy," replied his father, "I fear it would be a very unprofitable colony. A man, who commenced farming, wishing to raise turkeys, bought a pair from a farmer. It being late in the spring, the farmer asked more for hens than gobblers; and the buyer, seeing that the gobblers were much larger than the hens, took a pair of gobblers, but failed to find any turkey-eggs that summer. The drones are the males among bees. They are found in the hives only during the honey season. At the close of the honey season the worker-bees kill them."

Jane said, "I have learned that the most important bee in the hive is the queen, or the mother, as she might be called. She lays all the eggs. She lays eggs very rapidly, laying three or four a minute, sometimes three or four thousand a day. But she never lays very many eggs unless the bees are bringing in plenty of honey. In the cold winter months she lays hardly any. Every bee has its work to do. Some build the combs, others fly in the fields, searching for honey or pollen, others are nurses, and care for the young, while some stand as guards around the entrance."

"But," says Mr. Meek, "did you learn from the books how to winter bees?"

"Yes," said both children, "we read about it;" "but," said Jane, "I hardly know what is best. Some people carry their bees into nice warm cellars, where they are kept snug and warm all winter; still, some who do so lose their bees. Others leave their hives out unprotected all winter, standing just where they did during the summer; and, what seems very strange, sometimes their bees winter better than in cellars. This, in the papers, is called wintering unprotected, upon their summer stands. Some winter by leaving their hives upon their summer stands, and packing straw and hay around them to protect them from the cold; others write frequently about wintering in chaff hives; but I do not know what kind of a hive a chaff hive is."

Her father said, "I now remember that once when away from home I saw several very large-looking hives; and on inquiry I learned that they were chaff hives. I inquired how they were made, and was told that they consisted of two distinct hives, with a space between, which was filled with chaff, packed in closely, thus keeping the inside hive from the frosty air, and keeping it warm."

Here Tommy expressed his opinion that their bees would winter best in their nice warm cellar, adding that he had been reading that those in the cellar wintered on much less honey than those exposed to the cold. His father also favored wintering them in the cellar, but advised letting them remain on their stands until winter had set in, and until it seemed evident that the pleasant autumn weather was ended. He said it did bees good to have flights during winter, and that was why those left on their summer stands sometimes wintered better than those in the cellar. In winter they have flights occasionally, while the lack of those flights causes those in the cellar to become diseased.

Jane said, "I am glad our bees will be in the cellar during the cold stormy weather. I do not think I could sleep, cold winter nights, when the wind is driving the snow, and the thermometer is at zero, if our bees were out in the cold. Our horse has a warm stable, so has our cow. The chickens have a warm comfortable coop, and even our pig rejoices in good quarters. Why, then, should we leave our bees out in the cold?"

"But," says her father, "you forget, Jane, that all bees are in a house. Their hives are their houses."

"But, pa," said Jane, "I think an old nail-keg is not much of a house."

To be continued March 1, 1886.

THE SOLAR WAX-EXTRACTOR.

MORE SUGGESTIONS REGARDING IT.

I DO not know whether or not I can add any thing useful to the question regarding the solar wax-extractor, which seems now to be prominent, but I will give my experience in this direction, and some suggestions.

I made a solar wax-extractor the past season from the plan furnished by Mr. Poppleton, with some modifications. My box is 28×42 inches, outside measure, and 12 in. deep, with straight instead of zigzag bottom. The tray is made of wood, with a rim extending 1½ inches above its surface, except at the spout where the wax runs off. This is sheathed with tin, and is made just wide enough to slip inside the box. It carries its width for 20 in., when it slopes for about 14 in., a space of 6 in. being left for the wax to flow off.

It is covered with double glass, composed of 4 sheets 20×26 in. The tray is hinged near the back end by a couple of short pieces of stout wire run through the sides of the box into its edges. This admits of the front end of the tray being raised to lift the pail, which holds the wax, in and out.

This tray is large enough to hold the cappings of a day's extracting. Having drained during the night, they are put into the extractor the first thing in the morning; and if the sun is ordinarily strong they are melted before night. The wax is left in the pail till the next morning, when it will be found in a solid cake, floating on the honey which has run off with it from the cappings.

I purpose making some changes in my extractor, which I think will improve its workings. The sides of the box cast a shadow on the wax for several hours in the morning and afternoon, unless it is shifted about to face the sun as it advances. To do this the more readily, I intend to fix it on a frame made to revolve on a pivot. I find, moreover, that my extractor develops heat enough to scorch the honey which goes off with the wax, so that it is nearly spoiled, even for second-class honey. Perhaps perforated tin, as it is used in the extractor described by Mr. Muth-Rasmussen, on page 339 of GLEANINGS for 1885, would remedy this evil. The capacity of the tray might also be increased by having its width uniform, and having a gutter to catch the melted wax, this gutter having a slight fall from each end to the center, where a hole in it would permit the wax to fall into a pail.

Further improvements might be made by having the legs which support the end of the extractor fixed with a thumbscrew so that it could be supported at any height. A similar arrangement attached to the hinged end of the tray might correspondingly regulate its incline. Thus the position of the glass might be readily changed so that the sun could strike it at right angles at all times. As there are days nearly up to November when the extractor may be used, this is a matter of importance.

With these suggested changes I think that the convenience and efficiency of the sun wax-extractor, as I have used it the past season, would be greatly increased. Mine, as it is, I consider one of the most useful things which I have about my apiary, and I would not be without it for twenty times its cost. Heretofore the storage of cappings, till I had time to render them, was fraught with vexation. They would drip, drip, no matter how well they might be drained; and unless a tin receptacle were used, I would soon be reminded of the searching and sticky qualities of honey by finding a strain of it making its way over the floor from under my barrel of cappings. But there is no vexation of this sort now, and I thank Mr. Poppleton for his plain directions which led me to make a solar wax-extractor. JAMES MCNEILL.

Hudson, N. Y., Jan. 16, 1886.

Friend M., there is a simpler way of getting the sun's rays in the morning and evening than having your box on pivots so it must be turned. Use three or more panes of glass. Have one side at an angle southeast; the middle one at an angle facing the south, and the third at an angle facing the south-west. Or, to get a more perfect arrangement still, use a bell glass in the shape of a rounded comb or pyramid. I am astonished to know that the heat of the sun could injure the flavor of the honey. Some arrangement to let it run off before it is so hot would surely remedy this. In regard to having drippings or cappings, or any thing else, running down on to the floor, I would not have any such work about me. If those who help about the apiary can't be cured of such tricks, I would swap them off for somebody who *could* be cured.

A REPORT FROM TEXAS.

SWARMING-OUT OF NUCLEI.

I TOOK two colonies on shares three years ago last spring. I now have 35. I increased mostly by artificial swarming. I believe it is the best way, unless one could be in his apiary all the time during the swarming season. I made 7 artificial colonies this last summer, every one of which swarmed when the first queen hatched out. This is something I never knew before. I thought at first it was on account of their not having any unsealed brood. I gave them young brood and larvæ, but it did no good—they swarmed all the same. Of course, if I had given them a laying queen when the colonies were first formed, the trouble would have been over. One colony I gave a laying queen when formed, and I took over 100 lbs. of honey from it. The others all swarmed, and filled their hives, but made but little surplus.

EIGHT DEGREES ABOVE ZERO, IN TEXAS.

We are having cold weather here now—eight degrees above zero, which is uncommonly cold for this country.

COMBS BREAKING DOWN BY FREEZING.

I noticed this morning, while looking through my bees, that the honey was running out at the entrance of several of the hives; and on examination I found that the combs in the outside frames were cracked, and the honey oozing out. This is something else I never saw before. I've seen combs melt down in all kinds of hives, but I never saw them *freeze* down before.

DANGER OF LEAVING AN UPPER STORY ON DURING WINTER.

I have lost one colony this winter. It was a strong one, but I had left the upper story on, and they went above and starved to death, with at least 40 lbs. of nice honey in the lower story. Every frame in the lower story is solid sealed honey. So you see the loss of this colony is attributable to my neglect, for I know very well that bees could not winter, even in this climate, on all sealed honey. This is a good country for bees. We have a great variety of honey-producing plants. The horsemint is the best honey-plant we have here. A good many people keep bees here, but there are very few who take any pains with them. Most of them hive them when they swarm, set them in a fence-corner, and that is the last of them until robbing-time.

J. W. THOMPSON.

Decatur, Wise Co., Texas., Jan. 19, 1886.

Friend T., it is certainly very unusual for the bees of a nucleus to go out with the young queen, when they have brood in all stages in the hive. Of course, a laying queen would set things so much ahead.—One hundred pounds of honey from an artificial colony is pretty well, for a beginner. I think your locality must be a good one.—Eight degrees above zero is certainly colder than I supposed it ever was in Texas. No wonder your combs broke and let the honey run out. A chaff hive would effectually remedy all such troubles, and I should most assuredly recommend chaff hives in Texas, if you are going to have a repetition of the temperature mentioned above.—Bees are always liable to go into the upper story where it is left on all winter, because the warmth from their bodies rises naturally, and they follow in their efforts to cluster in the warmest place in the hive. Here is where the advantage of the Hill device comes in. It makes a cavity covered on all sides by the chaff cushion. Now, this chaff cushion allows air to pass through fast enough to keep it always pure, and at the same time it holds it long enough so the heat of the hive may accumulate in this cavity, inducing the bees to cluster right there, with their stores of honey so near them that they are always able to reach it.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

ROAD DUST AS POLLEN.

BEES do actually gather dirt for food. Here is what I copy from my "Bee-Book of Items," dated April 13, 1884.

"Bees are working lively to-day, and yesterday, after a confinement of a week of cool weather. They are carrying in water and dust from the road."

I never saw bees gather dirt but this once, and perhaps it was a week that they worked on it. They packed it just the same as they do pollen. It was on account of frost and strong winds destroying the pollen from the trees that had been yielding pollen before, and, of course, they quit the dirt as soon as they could gather elsewhere. I offer this in reply to you on page 10, Jan. 1. Bees seem to be wintering well so far, as we have had a very mild winter up to date. JOHN A. THORNTON, 73—108.

Lima, Ill., Jan. 7, 1886.

CAN POLLEN BE ARTIFICIALLY REMOVED FROM CELLS?

Please tell us if there is any convenient way of extracting pollen from old combs. Last summer I filled my hives with combs where bees had died the previous winter, and there was a large amount of pollen in them. Will it prevent the queen laying—that is, will the bees clean the cells in the brood-nest, to make room for the queen to deposit her eggs? or, should such combs be taken from them next summer, and others supplied with foundation be put in their place? Is it certain that they use much pollen through the winter, if they have a plenty of honey? Is it right to cut out all the drone comb in the spring, and keep it out of colonies that you do not wish to breed from? These are questions that I don't recollect seeing answered in the A B C.

La Otto, Noble Co., Ind. E. S. HANSON.

The subject of removing pollen from old combs was up several years ago, and I believe we had one or two communications to the effect that steaming them in a wash-boiler, or some other similar way, till the pollen was quite soft, would enable one to throw it out by means of a honey-extractor. Of course, one must take pains to avoid melting the comb. In our locality we never have too much pollen; that is, when brood-rearing commences in the spring, by distributing the combs of pollen among hives rearing brood largely, we get it all worked up into brood without any trouble. I do not think much pollen is used in the winter, unless brood-rearing is going on largely.—Your question in reference to drone comb is answered by friend Dadant in another column.

THE STANLEY EXTRACTOR.

We have made some slight improvements on the extractor you saw at Detroit, but no great changes, as we think they are now about good enough for practical purposes. We intend to start a branch shop somewhere near Kansas City during the month of February, so that our friends in the South and West may avail themselves of a chance to get a machine at a low rate of freight. G. W. STANLEY.

Wyoming, N. Y., Dec. 19, 1885.

FURTHER FACTS REGARDING FRIEND HOXIE'S HOUSE-APIARY—P. 744, 1885.

As some one may build a house apiary like mine, perhaps I ought to explain it more fully. Those doors with glass in them are not for the purpose of excluding bees or getting them out of the house. They are only for giving light and warmth in cold weather; when the house is opened, no bees ever get on them. I planned my house especially to meet the objection you raised. In opening the hives, the bees fly on to the screen doors; as there is no other place the light enters, all I have to do is to swing the door around against the side of the house with a little jar, and they immediately fly off. I have tin spouts through the house between the hives, which I forgot to mention, and were put in after I got my bees in the house. These spouts are pieces of tin rolled up and put through a 1½-inch auger-hole, level with the floor, and project outside 1½ inches. They are cut with a couple of projections on opposite sides, which are bent over against the inside of the house, and nailed with two tacks. These spouts are closed on the inside with short plugs, with a nail in the end to pull them out by. In order to have the bees that get on the floor go out of these spouts, the tin passageway where it meets the house must be made tight with putty or thick paint, so the light can not shine through, or they will try hard to get out there. In putting up my bees for winter I made, out of pieces of barrel-hoops and pieces of barrel-staves, an article something like the Hill device, which I put under the cloth, and have the covers off; the upper story and all around the hives are filled with dry leaves.

Holloway, Mich., Dec. 1, 1885. H. S. HOXIE.

We have tried similar expedients, friend H., to get the bees out of the house-apiary; but the universal conclusion, by myself and all the hands, is, that it is a good deal simpler and easier to have the bees outdoors where they do not have to be chased after when they get outside of the hives. Although our house-apiary cost several hundred dollars, it stands to-day without a bee in it, and probably will so stand for many years at least.

PACKING POLLEN ON THE HIND LEGS; HOW IT IS DONE.

I have been much interested in your articles on the honey-bee, and in your description of "how the bees back the pollen on their hind legs." You appear to have some doubt just how they manipulate, as their motions are so quick; and I just want to say, that you have got it about right. Now I will tell you what I saw with my own eyes. While visiting at one of my neighbor bee-keepers we were looking through some of his hives and we detected the smell of pine tar. In looking more closely we found that the bees had been using the tar in the place of propolis, and the next question that came up was, "Where did they get the tar?"

TAR AS A SUBSTITUTE FOR PROPOLIS.

"Well," said my neighbor, "the big wagon that we have been hauling stoves on is standing down by the barn, and it has been lubricated with tar, and we will go and see if they are at work at the tar business now."

When we arrived at the wagon there were several bees about the hubs and spindles of each wheel, so we concluded to watch and see how they managed to carry the tar; and as the tar was quite stiff and black we could detect every movement. The bee did not frisk and dodge about with his wings and tail up as they do when gathering pollen, but settled right down to business, biting and twisting away at a little pellet of the black tar; and as soon as he had it in the right shape to suit him, he snatched it from his mandibles with his fore foot, passed it to his next foot, and that foot stuck it in the pollen-basket and patted it down with several strokes. Now you have an idea about how fast Mr. Bee handles his feet; but the pellet of tar was so large and black, the bee at rest, and the sun shining brightly, that we saw with our own eyes, and we both agree that the foregoing is correct.

Valley, Ky., Jan. 16, 1886. G. F. HESELTON.

Thank you, friend F., for so carefully watching the operation. I have seen bees take pellets of wax, but could never witness the action of the middle leg in depositing it in the pollen-basket; but I was anxious to ascertain just how this middle leg grasped the pollen or wax. Did you notice whether the foot of the middle leg, or one of its joints, picked up the little pellets, and transferred them to the hind leg? ERNEST.

A REPORT BOTH ENCOURAGING AND DISCOURAGING.

My bees diminished from 24 to nothing, and my subscription to GLEANINGS has expired. I have enjoyed reading it much, but have yet to learn the taste of nice honey made by my own bees since 1881, when I began with one swarm. I have raised a club for the *S. S. Times*, for 1886, and sent direct to publishers. Thanks for past favors, and best wishes for your future. A. W. VALENTINE.

Bethel, Me., Dec. 22, 1885.

Friend V., we are very sorry to hear that you have not had a taste of honey yet, even with so many bees as that; but we are glad to know that you have dropped off from our list of the *Sunday-School Times*, and have raised a club in your neighborhood. Several have reported in a similar way in regard to the *Times*, and that is what I regard as encouraging; for it can not go into any community without raising the general standard of morals of the people.

LANGSTROTH'S NEW BOOK, ETC.

Mr. Editor:—We wish to thank you for your kind notice of the revision of "father Langstroth's book;" and in answer to inquiries already coming, we wish to state that the revision is not yet half through, owing to our gathering new matter and engravings and information from different parts of Europe and America. The book will not appear before spring, perhaps not till fall. In connection with this work we wish to correct the erroneous idea entertained by some, and found in Mr. Heddon's new book, that we use the closed-end Quinby frame. The frame we use and prefer is the old hanging Quinby frame, made exactly on the principles of the Langstroth invention. The publication of the *new* Langstroth book will be duly advertised in the bee-periodicals, when ready.

Hamilton, Ill. CHAS. DADANT & SON.

THE SOLAR WAX-EXTRACTOR.

I think I have an idea that is good; at any rate, I venture. Take a dish, or rinsing-pan, from your 50-cent counter; solder a tube in the bottom near the side; now place this in a square box with a glass cover. I would have a shelf fixed on the south side of my honey-house, directly under a window. I would use the pan for an uncapping-can, and when it becomes nearly full I would set it out to melt. I am of the opinion that reflectors are unnecessary, also that one glass is enough. The dishpan is just the right shape, and will astonish one to notice the amount of heat they attract. I have, by holding the pan at the proper angle, lighted a cigar in less than two minutes; but of course the heat is diminished when the bottom is covered with wax. I should like to ask if an ordinary tin tea-kettle, with a screw top, would generate sufficient steam to extract the wax in a Dadant uncapping-can. The kettle could be connected with the can by a few feet of rubber tubing. WALTER S. POUDER.

Groesbeck, O., Jan. 3, 1886.

Thanks, friend P., for your idea of the dishpan. Our largest size of retinned, stamped dishpans would doubtless make quite a powerful reflector. We shall probably soon get out a solar wax-extractor that is effective, and does not cost very much money either—may be something made from common utensils we have in every-day use. A common tea-kettle, arranged as you suggest, would, I think, melt the cappings nicely in a Dadant uncapping-can, providing you do not put in too much at once.

A PLAN FOR HEATING BEE-CELLARS.

I desire to present to you a plan for heating bee-cellars, or, rather, modifying the temperature. Place in your kitchen, near the cook-stove, a boiler that any plumber-supply dealer can furnish for $4.00 or $5.00. Pass a pipe from the boiler through the fuel chamber of your stove, and to your bee-cellar pass a pipe around the cellar near the floor, and back again to the boiler. If the cellar is away from the house, place the pipe five or six feet beneath the surface, fill the boiler and pipes, and you will have a circulation of warm water that will nicely temper the atmosphere, and give an opportunity for good healthy ventilation. If necessary, you can supply a cut-off pipe so you can cut off circulation through the cellar, and cool it if necessary; but I should think it better to ventilate well. You can easily keep the temperature at 40° to 50°, and give the bees a good ventilation. As to detail of arrangements, any plumber can give you full particulars.

CHARLES E. PARKS.

Watertown, Wis., Dec. 30, 1885.

Friend P., your arrangement is substantially the hot-water plan generally used for greenhouses and conservatories, only instead of heating a part of the pipe, the *boiler itself* forms a part of the circuit, and the heat is applied through the boiler, or through flues in the boiler, and the only place where the circuit is open to the outer air is at some point in the greenhouse furthest from the furnace. Here is what is called a stand-pipe, to fill up what is lost by evaporation, and also to allow the water to expand and contract by the different temperatures. As soon as heat is applied, a circulation commences. Hot water goes from the boiler out to the stand-pipe, and the cold water goes back into the boiler again. A home-made apparatus, such as you describe, will often answer very well for special case .

PRIZES FOR HONEY AND BEES AT FAIRS; HINTS TO VICE-PRESIDENTS.

During the first three months of the year, the premium-lists for County, State, and District Fairs are usually made up. The Vice-Presidents of the National Society should therefore soon commence their work.

I would respectfully suggest that they communicate with the different Official Boards of the Agricultural Societies in their respective States, and endeavor to induce them to offer appropriate prizes for BEES and HONEY at the fairs for the coming season.

The following, or something similar to it, would be well to recommend in the line of prizes:

Best colony of bees in observatory hive; best display of comb honey; best display of extracted honey; best display of beeswax; best honey-extractor; bee-hive for all purposes; and largest and best display of apiarian implements.

Each vice-president and secretary of State and local societies will understand the requirements of their locality, and act and govern themselves accordingly. H. D. CUTTING,

Chairman of Executive Committee.

Clinton, Mich.

I second your motion, friend C., in the above matter.

BROOD WITH THEIR HEADS UNCOVERED.

On page 51, current volume, Mr. C. C. Miller, in speaking of bees with their heads uncovered, says that he doesn't think they are ever left uncovered unless the wax-worm uncovers them or runs galleries over them. Now, I think differently, for I have seen patches as large as a man's hand, and in several combs in the same hive; also in very populous colonies, which would be very likely to keep the wax-worms at bay.

My report for 1885 is not at all flattering, as the few bees I have didn't make any surplus, and most of them will have to be fed in the spring before they will be able to support themselves from the flowers. LUTHER PURDY.

Killbuck, Holmes Co., O.

Friend P., since you mention it I remember too that it is strong healthy colonies, so far as my experience goes, that leave the brood uncovered during hot weather. I can not think that it was wax-worms in our case.

PARADISE LOST.

Please tell us what Paradise Lost is. I think there are many of our readers like yourself who do not know, but are anxious to find out.

Nappanee, Ind., Dec. 25, 1885. I. R. GOOD.

Friend G., our proof-reader says that Paradise Lost is the immortal masterpiece of that great Englishman, John Milton, the blind poet, who died 1608. Great scholars in all foreign nations have studied the English language, simply that they might read Milton's Paradise Lost, as others have studied it to read Shakespeare. As far as I have read it, it seems to be about Satan and his allies before the advent of man upon the earth; and it makes one painfully aware, when he reads it, that Satan is still making himself busy with the affairs of humankind. The beginning of the book has little more Bible authority than the epistle of Jude and Luke 10:18. It can be had anywhere for 15 or 20 cents. In England it has, we believe, been sold at a penny a copy, which would be about a nickel for us.

BEES STEALING EGGS.

I am still reading GLEANINGS. It is a pleasure to peruse its pages, and get the different ideas. A great deal has been said about bees stealing eggs. Last summer I saw a variety of things that bees are in the habit of doing. I had one swarm of blacks that were queenless. These bees were hovering around the entrance of another hive having a queen, and were picking up things that were brought out. I saw that the bees in the hive which contained a queen were cleaning out some moth webs, and once in awhile they would bring out what I thought were eggs, or something like them, and would let them drop in front of the hive; then these blacks would pick them up and examine them, and fly off with them. Since the subject came up, about bees stealing eggs from other hives, I have been thinking it is just what those blacks were on the search for—to get an egg for a queen. It was in the fall, and I united them to a late swarm.

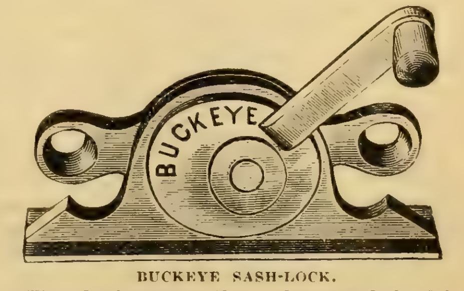
Ashland, O. A. H. BAUM.

Friend B., your suggestion is a valuable one; and since you mention it, it seems that this is the way in which a queenless colony sometimes gets an egg, to save them from utter ruin.

A DEVICE TO FASTEN WINDOWS UP OR DOWN, OR AT ANY POINT.

SOMETHING EFFECTIVE, ALTHOUGH LOW IN PRICE.

FOR many years I have been trying to get something better to hold a window up than a stick or a book, or something of that sort; but although we have tried them, even paying as high as 75 cents per window, I have never had any thing please me so well as the little device illustrated below.



BUCKEYE SASH-LOCK.

This device holds the sash securely by friction in any desired position, as tight as if it were in a vise. It prevents the sash from rattling, and excludes the dust by making tight joints, and yet it does not mar the wood. It is put on with two screws, and can be fitted by an inexperienced hand in three minutes. It works equally well on upper or lower sash, with or without weights. Printed instructions are furnished with each one, as well as screws to fasten them on with, and yet the price is only 5 cts.; 10 for 48 cts.; 100 for $4.50. If wanted by mail, add 2 cts. each extra. The little device is the invention of one of our Medina Co. boys.

TEMPERATURE OF SUB-EARTH VENTILATORS.

SOME INTERESTING EXPERIMENTS.

I HAVE just been making some observations on the temperature of my cellar, sub-earth ventilator, etc., and will give you the result.

Yesterday morning the thermometer stood 14° below zero; and as this was just the temperature outside when C. C. Miller made his tests, it gave me a chance to get at comparative temperatures, and I found my cellar and ventilator just tallied with his; viz., 42° for the cellar, 43° for the air coming in at the sub-earth ventilator. The other end of the ventilator was covered with snow when these tests were made. I wonder if Mr. Miller's was. To-day, in order to know just how much the temperature of the air was raised in passing through under the ground to the cellar, I cleared away the snow at the outside end and put a thermometer in and found it stood 8° above zero, while the general atmosphere was only 4° above, although the bulb of the thermometer was not over 10 inches from the outside. Can it be there is a circulation both ways in an underground ventilator? This would seem to show it, although the inward draft in the cellar is quite strong—so strong that a match burns with difficulty when held in it. Next I again tried the cellar end of the ventilator, and found it stood at 44°, or an increase of 40° degrees over outside temperature. My ventilator, which also serves as a drain, is 80 ft. long and about 8 ft. deep at the cellar end, and comes to the surface at the other end. The opening is made by laying small stones on each side at the bottom of the ditch, so as to leave a space between, and then a flat stone to bridge them over and hold up the dirt. The size of the opening varies, but I think it nowhere less than 2×4 inches.

I consider ventilation of cellars for bees of prime importance, not so much on account of the purifying of the air, as affecting temperature. It is true, that we can keep the temperature up well enough without ventilators; but, can we keep it *down* equally well? Perhaps this might be done with ice; but not every bee-keeper has ice, and I am one of the number who do not believe in a temperature of much over 45° for bees; and if I could have my way about it, I would have it go no lower than 40° nor higher than 50°. How a temperature of 60° can be kept up in this latitude, without artificial means, is more than I can see. Mr. Barber thinks he is master of the wintering problem under his high-temperature plan, because he has saved an average of 80%. I have a record of my losses for 5 years, and the average is a trifle over 16%. I do not think that the advocates of high temperature can claim *all* success for their plan, and I think the idea is fraught with much danger to the novice and inexperienced.

THE TEMPERATURE OF A WELL, AND A SWARM OF BEES IN WINTER.

I have also tested the temperature of my well, which is 123 ft. deep, and find the water, when coming direct from the bottom, is 50°. Do you not suppose that the temperature of water in wells will vary more than the temperature of the earth? To test the heat of a cluster of bees, I pushed the bulb of a common dairy thermometer right down among the bees, put back the quilt, left them until they were quiet, and drew it out. It showed 88°, while the lower end of the cluster hung right out in the air, which was 42°. **C. A. HATCH.**

Ithaca, Wis., Jan. 12, 1886.

AN ARCHED STONE CELLAR, AND THE EFFECT OF A LARGE DRAIN UPON IT 150 YARDS LONG.

Permit me to give you an account of a little experiment, made with reference to the temperature of the earth, etc. I have a cellar, the bottom of which is 12 feet below the surface of the earth. It is covered by an arch of stonework 18 inches thick, with a basement and dwelling-house above it of stone. It is connected with the outside air by 4 flues running from the top of the arch up through and above the top of the house, flues 8 inches square. The cellar has a drain from the bottom, running 150 yards to the lake, from 12 feet below the surface at the cellar, to 4 feet below, where it comes out at the lake. The outlet is two 2-inch tile, but the drain is much larger inside in some places, being of stone.

Jan. 8, thermometer outdoors 14° early in the forenoon, and at 20° when I made the experiment. Temperature of cellar, 45°, six feet above the floor. The wind was coming in at the entrance of the drain sufficiently strong to blow out a candle, and it felt colder than the cellar. I placed the thermometer in the entrance, and was surprised to find it *go up* to 50°. As the air entered the drain at 20°, and was warmed up in its rapid passage to the cellar to 50°, I conclude that the earth at the depth above mentioned must have a temperature greater than 50° here on Pelee Island, Canada.

Jan. 12, thermometer early in the forenoon, zero; at noon, 12° outdoors; 42° in cellar, and 48° in entrance to drain. The cellar is at a low temperature, on account of the flues being open all the time.

THADDEUS SMITH.

Pelee Island, Ont., Can., Jan. 15, 1886.

65° OUTSIDE AND 40° INSIDE.

I am quite interested in the temperature of the earth in different places. In my new bee-cellar, which is six feet deep between floors, the thermometer stands at 40° when it is at 65° outside; and when it goes to 10° below zero outside it goes to 36° above in the cellar, with the sub-earth ventilator open. This ventilator is made so that the entrance for the air is four inches square. It is but 20 ft. long, and is about five feet under ground, nearly all the length of the ventilator. Do you think that 40° is warm enough, or would it be best to use artificial heat to make it warmer? The bees are quiet, and seem to be doing well. **WM. L. KING.**

Sodus, Mich., Jan. 5, 1886.

Reports seem to indicate, as you will notice, that the temperature of the earth varies considerably, even though the depth be about the same. The Mammoth Cave is probably at the highest extreme, but the depth may, of course, have something to do with it. I believe, however, we can depend upon getting a temperature of between 40 and 50 degrees at any season of the year by going down, say, 10 or 15 feet. Am I not right? Landreth, in his catalogue, says that the best temperature for a greenhouse for lettuce, radishes, etc., is between 40 and 50 degrees; and, if I am correct, the general experience of those who winter bees in cellars seems to be in favor of about the same temperature. Some think 55 degrees will do no harm; and for our greenhouses 55 degrees would be very desirable, if we could get it without artificial heat.

THE TEMPERATURE OF MOTHER EARTH.

UNIFORM AT A CERTAIN DEPTH.

FRIEND Allen sends us something which is right to the point we were discussing. It is taken from Ganot's Physics, of 1879, and it reads as follows:

"*Terrestrial Heat.*—Our globe possesses a heat peculiar to it, which is called the *terrestrial heat.* The variations of temperature which occur at the surface gradually penetrate to a certain depth, at which their influence becomes too slight to be sensible. It is hence concluded that the solar heat does not penetrate below a certain internal layer, which is called the *layer of constant temperature:* its depth below the earth's external surface varies, of course, in different parts of the globe; at Paris it is about 30 yards, and the temperature is constant at 11.8° C."

Now, 11.8° Centigrade, if my reduction is correct, is the equivalent of 53.54° Fahrenheit.

I presume, however, that proximity to hidden veins of sub-earth water-ways, and possible volcanic localities, may raise the normal temperature of many tracts of country beneath the ground. Nearness to water, rather than to fire of our burning earth, methinks, most generally modifies the cellars of our friends. FRANK ALLEN.

Philipsburg East, P. Q., Can., Jan. 8, 1886.

Here is another:

52° THE TEMPERATURE OF THE WATER FROM A SIDE-HILL.

You ask for information in regard to the temperature of the earth at considerable depth from the surface. On the 25th of Dec., 1885, I tested the water from a spring gushing out from under a hill some 200 ft. in height, and found the temperature to be 50½° by one thermometer, and 53½° by another. Probably 52° is about the exact temperature for this vicinity. LUTHER PURDY.

Killbuck, Ohio.

You notice from these, that the earth does really have a temperature peculiar to itself, but that the depth at which this is reached varies in different localities. You observe, as a further proof, that at Paris, 53.24 deg. F. tallies closely with that of Mammoth cave, which is 55 deg., with my experiments (97 feet below the surface at our factory), which showed 56 deg., and with friend Purdy's side-hill experiments, which showed 52 deg. It seems to me, then, we do not jump at conclusions when we infer from these facts that the earth has a temperature of its own. ERNEST.

Ernest:—I took my A. I. Root thermometer, tied a string to it, and let it down into my spring. After holding it there some time it registered 46°. The temperature of the air was 34°. The spring is three feet deep, the water coming in from the bottom. I wish you and the "queen" that had spunk enough to swarm out in December much joy, and a long, happy, and useful life. C. K. SCHMELTZER.

Scholl's Ferry, Oregon.

Your experiments differ from those just preceding, because you did not go deep enough. Had you gone, say 100 ft. or more, you would probably have struck the zone of "terrestrial heat," which is 53 deg. Thanks for your kind wishes, and I wish the same joy to you; *i. e.*, if you have a "queen." ERNEST.

Noticing the report of H. R. Boardman and T. H. Kloer on temperature of wells, to-day I tested our well, situated in South Florida, Polk Co., 25 ft. deep. The temperature outside was 39°. I drew a bucket of water, immersed the thermometer, and in three minutes removed it and found it just 70°. If I am here in the summer, I will make the experiment then and find if there is any change.

Lakeland, Fla., Jan. 11, 1886. J. D. COLES.

In your southern clime you would have to go probably much more than 100 ft. to arrive at the zone of "terrestrial heat." Your experiments show that the ground near the surface is much warmer than it is here north. ERNEST.

A PLANER SAW, AND HOW MADE.

REVERSIBLE FRAMES, ETC.

SOME time ago I saw a number of articles on saws cutting smooth. The rip-saw I use for sawing sections is 16 inches in diameter; but the diameter would make no difference. As the Simond's saw-works are located in St. Catherine's, 8 miles from here, I probably am somewhat favored. A year ago I went to the works and asked the foreman if they could concave a saw for me. They replied yes. I gave them my order. The center, or eye, is about one-half as thick as the teeth. I think one less concaved would do as well. It is not quite so rigid on the mandrel as it would be were it not concaved. I can saw smoother than it can be planed. The teeth are about ½ inch apart, but I think ¾ would do as well, and cut faster. One tooth is filed square across back and throat, then the two following are filed right and left on the back; but the throats are all filed square across, or at right angles with the saw. This is done to prevent the teeth from springing outward while at work.

REVERSIBLE FRAMES.

I have never used any yet. Why? Because I never thought they would pay any percentage on the capital and time invested. I should prefer using less frames in the brood-nest with dummies, and, rather than handle the frames so much, even if I did get a slight increase of honey, I should prefer keeping a few more colonies, even if all the honey were stored in sections. I do not want any more feeding, unless I wish increase. Two seasons since, I began bee-keeping. I have fed for increase absolutely. I think if a location will not produce a paying surplus without feeding winter stores, pack your grip and look up a better. Time is worth too much to waste.

8 OR 10 FRAMES, WHICH?

For some time back I have been reading the communications in regard to hives containing eight or ten frames. My opinion is this: That it does not make much difference; but I should prefer a ten-frame hive. When a swarm issues from a ten-frame hive, is it not larger in proportion than an eight-frame swarm? It appears to me that I can see considerable in favor of the ten-frame hive, there being just one fifth more bees to work in the sections. WILL ELLIS.

St. Davids, Ont., Can.

Friend E., we have tried saws concaved in the way you mention; but on account of the greater liability to rattle or shake at the outside diameter, where the teeth are, we finally abandoned them. We get saws to cut just as nicely, I think, made all of a thickness, and the expense is much less.—It seems to me you are hardly qualified to decide in regard to reversible frames until you have used them, and watched the working of them. Those who use the eight-frame hive expect, as a rule, to get as much brood in eight frames as we have ordinarily in ten, obliging the bees to put their surplus honey in the sections. Where a queen occupies ten L. frames, it is almost always true that more or less honey is stored in some of the frames along the top-bar, especially toward the upper outside corners.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 1, 1886.

For where your treasure is, there will your heart be also. Matt. 6:21.

Common nails are ½c. or more lower, per. lb., than the prices given in our price list.

The number of our subscribers this 29th day of January is 4981; 19 more, and we shall be 5000 again.

We take pleasure in calling attention to the advertisement of our good friend Peter Henderson (to be found in this issue), whose name we have so often mentioned as the great pioneer market gardener.

ALSIKE CLOVER.

Until further notice, the price of alsike clover seed will be as follows, instead of according to our price list: Price per pound, 18 cts.; per peck, $2.25; per half bushel, $4.40; per bushel, $8.50; 2 bushels, $16.50.

OUR SEED CATALOGUE.

It is now ready; but, to tell the truth, when compared with the seed catalogues that are sent out by our great seedsmen, ours does not look very handsome. Never mind; we will give you some prices on some things that perhaps will help the matter somewhat.

DISCOUNTS FOR THE MONTH OF FEBRUARY.

Until further notice, we will give the usual discount of 10 per cent on foundation; 5 per cent on sections; and as an inducement for ordering before the great rush comes, an extra 3 per cent on all goods mentioned in our list, ordered during the month of February.

BASSWOOD HENS'-EGGS.

These are not quite as good as the kind they tell about in the papers, that can be told from the genuine egg only by experts, but they are tiptop nest-eggs. They do not freeze, and the old biddies can't eat them up. Price 2 cts. each; 15 cts. for ten, $1.20 per 100, or $10.00 per 1000. If wanted by mail, add one cent each for postage. Supply-dealers who manufacture sections can make bushels and bushels of nice nest-eggs out of refuse bits of white basswood. "Do you see?"

THE SPECIFIC GRAVITY OF MOIST AIR COMPARED WITH DRY AIR.

On page 89, friend C. C. Miller calls attention to the statement on page 43, that moist air is heavier than dry air. Friend Green has got off from the track here; but he is usually so accurate, it was passed unnoticed. Years ago, Prof. Wise, the distinguished æronaut, made a balloon of linen cloth, filled it with common air, and found that, by sprinkling the outside of the balloon with water, the air inside would be dampened to such an extent as to cause the balloon to rise. Warm air will take up a much larger quantity of moisture than cold air. This we notice by seeing the dew precipitated when a body of air is suddenly cooled.

REVERSIBLE HIVES NOT A NEW THING.

If our friends will turn to the *A. B. J.* for June, 1870, they will find an engraving of John M. Price's revolvable and reversible comb hive. The hive is made to reverse not only the brood combs, but the wide frames holding sections as well; and they not only go either side up, but *any* side up, for the frames are perfectly square. Friend Price, at the time the subject was up, urged quite vehemently the advantages of reversible frames, as well as reversible hives, for his hive reverses just as well as each frame reverses. Friend P. is now located in Florida; and with his sixteen years of experience with these reversible frames and reversible hives he ought to be able to give us some favorable suggestions. Can't you do it, friend P.?

SHALL WE FEED OUR BEES SUGAR STORES FOR WINTER?

The statements made by our good friend Wright and Mrs. Harrison may be true; but for all that, if I found by experience that my bees would winter safely on stores of sugar, and would not so winter on honey, I should winter them on sugar, and try to have faith in educating humanity to understand these things as they are. I do not believe my friends and neighbors would conclude I was feeding the bees sugar, and selling it for honey, even if they did see me buying barrels of sugar at a certain season of the year. I believe, however, that the general testimony indicates that stores of good sealed honey are pretty nearly as safe as sugar, and therefore the only advantage in sugar feeding will be when we have got to feed something, and, of course, we may prevent this state of affairs by laying up a reserve stock of combs full of sealed honey; and at the present prices of honey and sugar, I am inclined to think reserved combs are about as cheap feed as we can have, and it is certainly handier than any kind of a feeder. What bee-keeper has not enjoyed having great heavy combs of stores to give any colony that happens to need food? With a hive holding ten frames, unless the colony is remarkably strong in numbers, there ought to be a sufficient surplus in the brood-nest to prevent any such thing as starvation at any time of the year.

THE NEW AGRICULTURE; OR, THE WATERS LED CAPTIVE.

WE have finally made quite a purchase of the above-named book, written by the Honorable A. N. Cole. Of course no one can announce positively on the system laid down in this book until it has had further test in the hands of the average market gardeners and fruit-growers. We extract the two following testimonials in regard to the book. The first is an extract from the report officially made to the Farmers' Club, of Elmira, N. Y., by its President, Mr. James McCann, and ex-President Geo. W. Hoffman:

> The changes wrought in the soil and its products constituted a great surprise. * * * Heavy showers had fallen in the week before our visit, but there was not the slightest appearance of washing. * * * There was a full crop of the most remarkable strawberries, one peculiarity of which was the absence of what may be termed a core or hard stem in the middle; they were juicy and tender all the way through. One plant of older setting had, we should judge, enough berries to fill a hat if they could be picked at one time.

The other was written for the *Husbandman*, of Elmira, N. Y., by the Hon. John H. Selkreg, of Ithaca, N. Y.:

> On the 9th of October, the present month, I looked over and critically examined the garden and field which have been trenched and treated by Mr. Coe. I found strawberry vines which, to me, seemed more luxuriant and thrifty than any which have fallen under my eye at any time. I saw raspberry canes of enormous size, I venture to assert more than one inch in diameter, and of extraordinary freshness and vitality. I saw Champion of England peavines which measured, standing, SEVEN feet from the ground, and containing blossoms, incipient pods, and full-grown peas, in quantity greater than I ever before had knowledge of, and I ate of those peas for dinner that day, and know their unparalleled flavor and delicacy. I measured a pumpkin, in girth five feet four inches; several squashes of about four feet diameter (length); and I helped dig a SINGLE HILL of Early Rose potatoes which, when weighed, tipped the scales at sixteen and one-half pounds, over one quarter of a bushel, five of these potatoes measuring an average of eighteen inches around in length, and nine inches in circumference. Taken as a whole, the wealth of growth upon the land cultivated by Mr. Cole, in my judgment, far exceeds what can be found elsewhere in this or any other State."

The price of the book is $2.00; but we will furnish it to subscribers of GLEANINGS for $1.40; 2 books, $2.50; 10 or more, $1.00 each. If wanted by mail, add 10 cts. each extra for postage.

SHIPPING GOODS WITHOUT CALLING THEM BY THEIR RIGHT NAME.

A CUSTOMER orders a package of honey, but tells us to be sure and not let anybody know the contents of the package; for if his customers found out he was purchasing honey from somewhere else they would jump to the conclusion that it was manufactured, and wouldn't buy. Now, there are very great objections to any such way of doing business. I don't believe it will pay any man, in the end, to mislead his patrons in any way, shape, or manner, either directly or indirectly. The railroad company are at once suspicious of any package where the shipper seems to desire or prefer not to mark on the outside just what the package contains. Of course, they can not tell what classification it should be shipped under, and so, to be on the right side, they will mark it first class, or even double first class. Some time ago the matter was discussed about marking barrels of honey, "syrup," so as to get a low rate of freight. I do not know how a Christian, or even a *simply honest* man, could consistently do any thing of this sort; and after studying the matter over quite a little, I can't see how a Christian, or even an honest man, can very well refuse to tell just what a box or barrel contains when he hands it over to the railroad company. If you can not sell honey and call it by its right name, and tell your customers exactly where you got it, don't undertake to sell any honey except what you raise yourself. May be the above advice may hinder in some degree my selling out that carload that came from California; but I would rather know that my patrons were frank and outspoken in their dealings, than to sell a hundred carloads of honey. The matter of buying sugar in the fall to feed your bees in the winter, comes in here indirectly. I shall always purchase sugar for winter feeding whenever I think it advisable, and I shall do it in broad daylight, without any effort to get any of the barrels out of sight, as if I were ashamed of it. Whenever any inquiry is made, I shall explain the matter as well as I can. If the public don't accept my explanation, I shall try to bear it.

CATALOGUES RECEIVED FOR 1886.

The friends will please put a date on their circulars when they are having them printed; for if they don't, how else are we to tell whether it is the same circular we noticed last year, or the year before, or a new one?

J. A. Humason, Vienna, O., sends a 4 page circular; specialty, chaff hives; also Italian bees.

J. B. Mason & Son, Mechanic Falls, Me., send us a little pamphlet of 50 pages, containing much valuable matter, besides prices on almost every thing pertaining to the bee-business.

Joseph Nysewander, Des Moines, Ia., sends us a catalogue of 48 pages, supplies in general.

Wm. Groff, Rome, N. Y., sends a 4-page circular. His specialty is Groff's Common-Sense bee-hive. May we suggest to friend G., that the term "Common-Sense," as applied to bee hives is in rather bad favor? It was especially so five or six years ago, as he will see by our back volumes.

Hughes & Tatman, North Topeka, Kan., send us their circular specialties, Plymouth Rock and Light Brahma fowls; also bees and queens.

Kennedy & Leahy, Higginsville, Mo., sends us their price list of last year, with change of prices on the cover.

J. T. Fletcher, Clarion, Pa. Specialty, fowls; also bees and queens.

C. W. Costellow, Waterboro, Me., 12 page price list; general supplies.

James Heddon, Dowagiac, Mich., sends us a 26-page circular; specialty, Heddon's new hive. This circular contains considerable matter of interest to bee-keepers, aside from the goods friend H. offers for sale.

J. V. Caldwell & Co., Cambridge, Ill., send a 16-page catalogue; specialty, Given foundation-press.

E. T. Lewis & Co., Toledo, O., send us a 32-page catalogue, very comprehensive, fully illustrated.

Among the catalogues lately printed at this office we notice the following:

A 12-page price list for J. W. Bittenbender, Knoxville, Ia.; supplies generally.

A 12-page list for for F. Boomhower, Gallupville, N. Y.; specialty, Italian bees and queens, and English rabbits.

A 6-page list for John Nebel & Son, High Hill, Mo.; bees, queens, fdn., etc.

A 4-page list for B. V. Hubbard & Co., Temple, Texas; hives, and supplies in general.

CONVENTION NOTICES.

The annual convention of the R. I. Bee-keepers' Society will be held February 11, 1886, in Providence. GEO. A. STOCKWELL, Sec.

Providence, R. I., Jan. 27, 1886.

The Seventeenth Annual Convention of the New York State Bee-Keepers' Association (formerly North-Eastern) will be held in Rochester, N. Y., on 17th, 18th, and 19th of Feb., 1886.

Perry Center, N. Y. F. C. BENEDICT, Sec.

AN OMISSION AT THE DETROIT CONVENTION.

The report of the committee on exhibits at the recent convention of the N. A. B. K. A. at Detroit did not include the exhibit of G. B. Lewis & Co., of Watertown, Wis. They call attention to the omission, and say, "Our sections were displayed in the sample room of the Newhall House, and also they were brought down to the office." This accounts for the omission in the report, for the committee supposed that all the exhibits were made at the Antisdel House. They also say, "We exhibited only 4¼x4¼ open-top, very white, basswood sections, and some English section-folders."

Toledo, O., Jan. 22, 1886. A. B. MASON.

STANLEY'S

AUTOMATIC HONEY-EXTRACTOR

Is acknowledged by all practical bee-keepers to be the most perfect and complete honey-extractor known. The weight of the combs reverses them the instant the motion stops, and they never miss. The Automatic is highly recommended by the following prominent bee-keepers:

Ira Barber, Prof. A. J. Cook, W. E. Clark, H. D. Cutting, F. F. Crooker, C. P. Dadant, W. T. Falconer, James Heddon, C. R. Isham, D. A. Jones, Dr. A. B. Mason, J. H. Martin, A. E. Manum, S. T. Pettit, A. I. Root, L. C. Root, J. H. Robertson, I. L. Scofield, F. A. Salisbury, J. M. Shuck, T. L. Von Dorn, and a host of others.

On account of the great call for our machines throughout the West and South-west we have decided to start another factory to accommodate that trade, and for that purpose J. E. Stanley has located at Topeka, Kansas, where he will manufacture the Automatic honey-extractor and dollar smoker, and where he will, in connection with Stanley Bros. there, establish a honey-store. Stanley Bros. are extensive wholesale dealers in fruits, nuts, and confectionery, and have a large trade through Kansas, Nebraska, and Colorado. J. E. Stanley is a practical honey-man, and will have full charge of the honey department.

All orders for extractors west of the Mississippi River (except from California), and also Wisconsin, Illinois, Kentucky, Tennessee, Mississippi, and Alabama, should go to the Western house. Orders for all other States east of the Mississippi River, as well as from all foreign countries, should come to the Eastern house.

Californians wanting our machines should apply to Messrs. Baker & Barnard, of San Buenaventura, Ventura Co., Cal. These parties order the reels from us, and make machines to order. This will be a great saving of freight to purchasers.

Our prices for machines taking the L. frame are as follows:

2-frame machines, without gear............	$12 00
3 " " " "	16 00
4 " " " "	21 00
6 " " " "	30 00

The above prices are for our machines without gear, but with crank attached to top of center-shaft. We add a strong vertical gear, with crank at side of can, for $2.00 extra, or a horizontal gear for $1.00 extra. If any frame, except the standard L., 9⅛x17⅝, is used, please mail us a sample frame and get prices on the machine you want.

Always address the house in your own territory.

J. E. STANLEY, Topeka, Kansas. **G. W. STANLEY,** Wyoming, N. Y.

This advertisement will not appear again. 3d

LEGS AND ARMS

(ARTIFICIAL)

WITH RUBBER HANDS AND FEET.

The Most Natural, Comfortable and Durable.

THOUSANDS IN USE.

New Patents and Important Improvements.

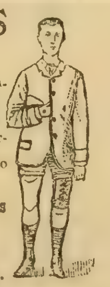
Special attention given to

SOLDIERS,

Ill. Pamphlet of 160 Pages SENT FREE.

A. A. MARKS,

701 Broadway, New York.



14-5db

Please mention this paper.

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db

A. F. STAUFFER & CO., Sterling, Ills.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

WILL SELL 20 COLONIES OF BEES

In Simplicity hives, in fine condition, for $5.00 each, if paid for now. Will ship bees in spring. Also a

BARNES FOOT-POWER SAW,

With counter-shaft and pulleys, two extra saws, cutter-heads, etc., for $30.00. Cost me over $50.00. Purchasers for the above can, if they prefer, send their cash to A. I. Root, Medina, O. 3-4-5d

I. L. PARKER, TRACY CITY, GRUNDY CO., TENN.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error.

WANTED.—To exchange new Novice honey-extractors for A. and L. frames; will exchange for a bone-grinder, or good books, or any thing useful. GEO. W. BAKER, Milton, Ind. 3-5 7-9-11-13d

WANTED.—To exchange one-half bushel of extra fine white-clover seed for alsike-clover seed. 19tfdb M. A. GILL, Viola, Richl'd Co., Wis.

WANTED.—To exchange or sell. Friends, I have 15 pairs of the celebrated Bonney's stock of Brown Leghorns that I will sell at $3.00 per pair, or will exchange for good beeswax at 25 cts. per pound. Circulars free. Ref., A. I. Root.
24tfdb A. H. DUFF, Creighton, Guern. Co., O.

WANTED.—To exchange golden-willow cuttings for Italian queens. I will book orders now, and send the willows as early as will do next spring: queens wanted in May and June, 1886. 2 dozen cuttings for a warranted, and 4 dozen for a tested; also one weeping-willow cut with each dozen. Will send by mail. S. C. FREDERICK,
24, 5db Coal Vale, Craw. Co., Kan.

WANTED.—To exchange a buzz and scroll saw combined, one polyoptican, new, one Smith American cabinet organ (catalogue price $210.00), all in perfect condition, for Plymouth Rocks, Chester or Poland pigs, Holstein or Jersey calves, or young cattle. L. W. LIGHTY,
2tfdb Mulberry, York Co., Pa.

WANTED.—To exchange strawberry and raspberry plants for $1.00 or tested queens, or pounds of bees (in spring). Address 2 tfdb
C. W. PHELPS & Co., Tioga Centre, Tioga Co., N. Y.

WANTED.—To exchange choice grapevines (5c each), fdn. machine, and hand printing-press, for buckwheat, beeswax, etc. Write to
3d F. C. MORROW, Wallaceburg, Ark.

WANTED.—To exchange two handsome cases of stuffed birds, for bees, comb fdn., or ex. honey; also eggs of P. Rocks and Brown Leghorns, $1.50 per sitting, for bees, queens, or comb fdn. mill.
Address T. G. ASHMEAD, Williamson,
3d Wayne Co., N. Y.

WANTED.—To exchange for a farm, or sell my place, consisting of 7½ acres of ground in the town of Lewisville, Ind. A small dwelling, poultry-houses, stable, and an everlasting gravel-bank, which affords about 3000 loads of gravel every year, which sells readily at from 10 to 15 cts. per load. The place is in a good honey locality, and good shipping facilities. Apiary slopes to the south and east; is surrounded on the north and west by a tight plank fence, about 7 ft. high. Apiary is set in grapevines. I will give five years' time, if sold. Direct all communications to
3-5-7d GEO. W. BAKER, Milton, Ind.

WANTED.—To exchange Simplicity hives for a circular-saw mandrel for hive-making by steam power. Will sell hives (in the flat) cheap for cash, or will take one-third pay in full colonies of bees. Hives in any quantity to suit customers, up to a carload per day. G. A. FARRAND,
3tfdb Rockport, Cuyahoga Co., O.

CONTRACTS WANTED
— WITH —
SUPPLY DEALERS
FOR NEXT SEASON'S STOCK OF GOODS.

CHAFF, STORY AND HALF CHAFF, AND SIMPLICITY HIVES, SMOKERS, EXTRACTORS, COMB FOUNDATION, FRAMES, SECTIONS, BOOKS, ETC.,

At wholesale and retail. Unexcelled facilities. Circulars and estimates free. Successors to S. C. & J. P. Watts. Sta. Kerrmore, B. C. C., & S. W. R .R.

WATTS BROS., Murray, Clearfield Co., Pa.
1tfdb.

LOOK HERE!

To introduce my strain of pure bright Italians, equal to any in the United States, I will offer tested queens, $1.00 each; extra fine, selected, $1.50 each; one-frame nucleus, consisting of one extra select queen, one frame of brood, ½ lb. bees, for $2.00. If you want any bees, send me your address on postal and I will send you sample by return mail. Beeswax or honey taken in exchange.

22tfdb **THOMAS HORN,**
Box 691, Sherburne, Chen. Co., N. Y.

THE CANADIAN BEE JOURNAL.
WEEKLY, $1.00 PER YEAR.

D. A. Jones & Co., Publishers, Beeton, Ont., Can.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, Germantown, Philadelphia, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; C. T. Dale, Mortonsville, Ky.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

FOR SALE. Five pair fine Pekin ducks, at $4.00 per pair.
1tfdb D. D. FARNSWORTH, Clive, Polk Co., Iowa.

Bee-Keepers' Supplies.

NORTH-WESTERN CHAFF HIVES, 4-PIECE SECTIONS DOVETAILED, FRAMES, HONEY-BOXES, ETC.

Address **R. SCHMIDT,**
6db **Caroline. Shawano Co., Wis.**

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS,

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

IMPORTED QUEENS.

In April, - - - - - -	11 francs in gold.
May and June, - - - - -	10 " " "
July and August, - - - -	9 " " "
September and October, - - -	7 " " "

No order received for less than 8 queens. Queens which die in transit will be replaced only if sent back in a letter. CHARLES BIANCONCINI & CO.,
1-11d Bologna, Italy.

JOB LOT OF WIRE CLOTH
AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1½ CTS. PER SQUARE FT.

Inches Wide.	No. of Rolls.	SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED. This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and cages for shipping bees; making sieves for sifting seeds, etc. Number of Square Feet contained in each Roll Respectively.
10	1	1 roll of 72 s. f.
20	3	3 rolls of 166 s. f. each
22	1	1 roll of 160 s. f.
24	3	3 rolls of 200 s. f.
26	71	22 rolls of 217, 38 of 216, 2 of 195, 1 of 156, 2 of 215, 1 of 210 s. f.
28	13	11 rolls of 233, and 2 of 234, s. f.
34	7	5 rolls of 281 s f.
38	37	28 rolls of 316, 3 of 285, 2 of 317, 1 each of 190, 632, 126, and 215 s. f.
42	1	1 roll of 245 s. f.
44	2	1 roll of 366, 1 of 348 s. f.
46	1	1 roll of 152 s f.
48	4	4 rolls of 400 s. f.

FIRST QUALITY WIRE CLOTH AT 1¾ CTS. PER SQUARE FT.

The following is first quality, and is worth 1¾ cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1¾ cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

Inches Wide.	
20	1 roll of 155 s. f.
22	1 roll each of 88, 143, 92 s. f.
24	43 rolls of 200 sq. ft. each; 1 each of 95, 120, 168, 190, 10, 150 140 sq. ft.
26	57 rolls of 216 sq. ft. each; 1 each of 199, 195, 201, 200, 227, 54, 204 sq. ft.
28	73 rolls of 233, 11 of 224, 3 of 229, 8 of 222, sq. ft.; 1 each of [illegible], 245, 257, 93 sq. ft.
30	36 rolls of 250 sq. ft.; 1 each of 137, 225, 125, 125, 220, 227, 237, 235, 275, 240 sq. ft.
32	13 of 266, 7 of 256, 2 of 253 sq. ft.; 1 each of 233, 250, 275 sq. ft
34	30 rolls of 283 sq. ft. each.
36	22 rolls of 300 sq. ft. each; 1 each of 288, 150, 279, 285, and [illegible] sq. ft.
38	1 roll each of 309 and 316 sq. ft.
40	1 roll of 233 square feet.
42	1 roll of 350 square feet.
46	1 roll of 192 square feet.

A. I. ROOT, Medina, Ohio.

75 COLONIES OF BEES FOR SALE.
Address **J. S. Baxter,**
1tfdb **Corinth, Alcorn Co., Miss.**

BURPEE'S SEEDS, FARM ANNUAL FOR 1886
Will be sent **FREE** to all who write for it. It is a **Handsome Book of 128 Pages**, with hundreds of new illustrations, two **Colored Plates**, and tells all about **the Best Garden, Farm** and **Flower Bulbs, Plants, Thoroughbred Stock** and **Fancy Poultry.** It is the only complete catalogue of the kind published, and describes **RARE NOVELTIES** in **VEGETABLES** and **FLOWERS**, of **real value**, which can not be obtained elsewhere. Send address on a postal to
W. ATLEE BURPEE & CO., PHILADELPHIA, PA.
3-4-5-6-7d

BEE-KEEPERS! If you are in need of hives, sections, comb fdn., honey-extractors, bees and queens, or any implement used in the apiary, send for price list to
J. SWALLOW, 2816 Mo. Avenue, St. Louis, Mo.
Successor to Buck & Swallow. 3-5d

Wanted. A partner, to go in the bee and supply business with me, for the business is increasing so fast that I can not manage it myself. Address or call upon LOUIS WERNER,
3-4d Edwardsville, Madison Co., Ill.

AT KANSAS CITY, MO.,
I RAISE PURE ITALIAN BEES FOR SALE.

Untested queens, in May	$1 50
" " June	1 25
" " after June	1 00

Tested queens, double the above prices.

Full colonies, before July 1	12 00
" " after "	10 00

Bees, per half-pound, same prices as untested queens.

For discounts on large orders, see my postal circular. I warrant my untested queens to be *purely mated*. If any of the friends who have dealt with me heretofore are not satisfied, I shall be glad to have a full statement of the matter from them, and will do the best that I can to render satisfaction.
3tfd **E. M. HAYHURST, P. O. Box 60.**

ALSIKE CLOVER SEED WANTED. Send best offers to T. P. ANDREWS, Farina, Fayette Co., Ill. 3d

HAVING again located at Nappanee, I shall be better prepared than ever to furnish bees and queens the coming season to my many friends and customers, as I have a large apiary of Syrian bees in the South, and one of pure Italians here, to draw from. Send for price list.
3-5d I. R. GOOD, Nappanee, Ind.

Eggs, $1.25 PER 13, from pure-bred, single-comb Brown Leghorns. Unexcelled layers. Address H. B. GEER, Nashville, Tenn., or E. W. GEER, St. Mary's, Mo. 3 8db

FOUR-horse portable engine, to exchange for larger one, or cash. Bees, Carniolan and Italian queens, supplies, 12-in. car-wheels and axles, to exchange for shafting and journals, cord-wood and dovetailing mandrels and saws, wood-lathe, shaper-spindles, counter-shaft, or cash. J. W. CLARK,
3 Box 34, Clarksburg, Moniteau Co., Mo.

Mirror, or Parti-scale Carp For Sale.

Spawners, 10 to 12 inches in length, per doz.,	$6.00
" 8 to 10 " " " " "	5.00
Small fish, 2 to 4 " " " " 100,	5.00

W. H. CARPENTER,
3-6db Springboro, Warren Co., Ohio.

NICE FOUNDATION, 35 CTS. PER LB.
W. T. LYONS, Decherd, Franklin Co., Tenn. 3-7

FOR SALE. 20 COLONIES ITALIAN BEES, on 7 Langstroth frames, in shipping-boxes, $4.50, or shipped in Parker chaff hive, $6.50 per colony.
WM. AMELANG,
3tfdb Ottumwa, Wapello Co., Iowa.

UNTESTED QUEENS, reared from BEST IMPORTED nuclei, and full colonies.
3-5d N. ADAMS, Sorrento, Fla.

W. Z. HUTCHINSON,
In order to more fully supply the wants of his customers, has entered into partnership with his neighbor, R. L. Taylor, and will offer for sale bees (full colonies, or by the pound), queens, Given fdn., white poplar sections, hives, cases, feeders, empty combs, etc., etc. Also hens' eggs, for hatching, of three varieties. For circular and price list, address
W. Z. HUTCHINSON,
3tfd Rogersville, Genesee Co., Mich.

Wanted. Situation as apiarist, for wages, or bees on shares, in one of the following States: Louisiana, Arkansas, Tennessee, Kentucky, or California. Fourteen years' experience; can do all manner of hive work or foundation, etc. Address
3-6db S. SMITH, New Smyrna, Volusia Co., Fla.

GOLDEN-WILLOW CUTTINGS, for one cent each postpaid. Two-cent stamps preferred.
3d S. HEATH, Rimer, Armstrong Co., Pa.

KIND WORDS FROM OUR CUSTOMERS.

THE BEE-PAPER.

If there is any other paper that I have not yet heard of that is equal to GLEANINGS, put my name down. I have four bee-journals, and GLEANINGS is, I think, *the* bee-paper. H. E. HILL.
Titusville, Pa., Dec. 17, 1885.

OUR CALIFORNIA HONEY.

I received the can of honey all right, and am very much pleased with it. I think it is as nice honey as I ever saw or tasted. I shall want some more of it after awhile. C. E. JONES.
Delaware, Ohio.

The two cans of California honey shipped Dec. 19th arrived here on the 30th in first-class condition. The honey has been declared by several persons as the finest they ever saw or tasted. I think it will sell rapidly. 3—GUSTAVUS WIEDERHOLD, 5—7.
Yonkers, N. Y., Jan. 1, 1886.

THE BEE-KEEPER'S WHEELBARROW.

The goods came all right. The wheelbarrow is the most complete, I think, I ever saw. Oliver, 8 years old, can wheel 50 lbs. on it with ease. The bees are doing finely, with good stores and a fly every few days. C. F. UHL.
Millersburg, Ohio, January 1, 1886.

WHAT G. M. DOOLITTLE THINKS OF GLEANINGS.

GLEANINGS for Dec. 15 has come to hand, the wrapper telling me that you make me a present of it for 1886. Very many thanks indeed. I wish to say that GLEANINGS is gaining ground; i. e., growing better and better every year.
G. M. DOOLITTLE.
Borodino, N. Y., Dec. 22, 1885.

A KIND WORD FOR THE SECTIONS WE ARE MAKING THIS YEAR.

The sections are just a little bit the nicest I have ever had. I have bought all my sections for the last 7 years, and these are the first that have altogether filled my idea as to what they ought to be. Although I have never complained to dealers, I have always thought they might be a little more careful about dovetailing the ends so they would not leave a jog of a 1-16 or ⅛ when driven together. These are just right. The counter goods are fully worth the money. Please accept thanks.
Summersville, Pa., Jan. 20, 1886. J. A. CLARK.

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100 COLONIES OF

ORANGE-COLORED ITALIANS

—AND—

WHITE-BANDED ALBINO BEES

FOR SALE.

THOSE IN WANT OF BEES, QUEENS, OR APIARIAN SUPPLIES WILL DO WELL TO SEND FOR MY 26TH ANNUAL PRICE LIST BEFORE PURCHASING. ADDRESS

WM. W. CARY,
Successor to WM. W. CARY & SON,
4tfdb *Coleraine, Mass.*

N. B.—The best testimonial I can give is, that my trade has more than doubled in the past three years.

STRAWBERRY PLANTS.

I will sell, from now until May 1st, in lots not less than 3000, packed and delived at express office.

Pure Crescent ....$2.00 per 1000
" Sucker State.................... 3 00 " "

4-5-6d C. F. TYSON, Centralia, Marion Co., Ill.

DUNHAM AND VANDERVORT FOUNDATION

We have a large stock of choice yellow beeswax, and can furnish Dunham comb fdn. for brood comb, cut to any size for 42c per lb. Extra thin Vandervort foundation, 48c per lb. We guarantee our fdn. to be made from pure beeswax, and not to sag. Will work up wax for 10c per lb., and 20c per lb. for section. **F. W. HOLMES,**
4tfdb Coopersville, Ottawa Co., Mich.

PURE ITALIAN BEES.

Full colonies, nuclei bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. ☞ Send for my circular and price list. You will save money by so doing C. M. DIXON,
4-11-db PARRISH, FRANKLIN CO., ILL.

A BARGAIN.

As I am going to move my apiary, I will sell 50 colonies of bees more at a bargain; 25 colonies Italians, with tested queens, from imported mothers; 25 colonies hybrids. Also untested Italian queens from imported mothers, and bees by the pound, for sale. Send for special prices, stating how many are wanted. Address W. S. CAUTHEN,
4-5-d Pleasant Hill, S. C.

BEES IN IOWA. SEE FOSTER'S ADVERTISEMENT.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

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180 ACRES

Selected, high, gray hammock and pine lands, not subject to overflow, situated on the

GULF-COAST RIDGE, IN TROPICAL FLORIDA,

81° 50' lon. west of Gr., and 26° 35' north latitude; 16 miles south of Fort Meyers, 2½ miles distant from Ostego Bay, crossed in its whole length by the lovely Estero Creek, for the culture of Oranges, Mangoes, Pineapples, Bananas, Cocoanuts, Date-palms, etc. Climate grand and delightful; water good and healthful; health, unsurpassed. In 5-acre lots, $12.50 per acre; the whole, or a 140-acre tract, $10.00 per acre. If wanted, 70 to 100 cols. of Italian bees for sale. Apply to **G. DAMKOHLER,**
4d P. O. PUNTA RASSA, MONROE CO., FLA.

TO CLOSE OUT my stock of COMB FOUNDATION, I offer *extra thin* at 45c per lb. *Brood*, 35c. Samples.
4d H. L. GRAHAM, Grandview, Louisa Co., Iowa.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error.

WANTED.—To exchange nice new apple-seeds for beeswax. M. ISBELL.
4-5d. Norwich, Chenango Co., N. Y.

WANTED.—To exchange, a home-made foot-power saw for bees. Write for particulars.
5tfdb. W. S. WRIGHT, Battle Creek, Mich.

WANTED.—To exchange Italian bees, queens and nuclei, for an extractor, supplies in the flat, and comb fdn. MISS A. M. TAYLOR,
4-5-6d. Mulberry Grove, Bond Co., Ill.

WANTED.—To exchange bees or eggs from Light Brahmas (Tees' Strain), for wire netting.
4tfdb. W. E. FLOWER, Ashbourne, Mont. Co., Pa.

WANTED.—In exchange for printing, or outfits for embroidery, at $1.00 or more each, 40 colonies of bees in Simplicity hives, Langstroth frames, one hive or more in a lot—deliver in April; or supplies, or poultry. W. EARLE CASS,
4d Newark, New Jersey.

WANTED.—To sell or exchange new Heddon hives, reversible frames, 17⅝x9⅛; also Plymouth Rocks, for extracted honey, Michigan quart berry-boxes, Jewell strawberries, Nemeha, Golden queen, and Shaffer raspberry plants, and pruning-shears. E. J. SCOFIELD, Hanover, Rock Co., Wis.

WANTED.—To exchange one-half bushel of extra fine white-clover seed for alsike-clover seed. 19tfdb M. A. GILL, Viola, Richl'd Co., Wis.

WANTED.—To exchange Stanley's Automatic Honey-Extractor for bees in spring, or for gold dollars now (the latter preferred). See advertisement in GLEANINGS for Feb. 1, or address
J. E. STANLEY, or W. G. STANLEY,
4-d Topeka, Kansas, Wyoming, N. Y.

WANTED.—To exchange or sell. Friends, I have 15 pairs of the celebrated Bonney's stock of Brown Leghorns that I will sell at $3.00 per pair, or will exchange for good beeswax at 25 cts. per pound. Circulars free. Ref., A. I. Root.
24tfdb A. H. DUFF, Creighton, Guern. Co., O.

WANTED.—To exchange strawberry and raspberry plants for $1.00 or tested queens, or pounds of bees (in spring). Address 2 tfdb
C. W. PHELPS & Co., Tioga Centre, Tioga Co., N. Y.

WANTED.—To exchange Simplicity hives for a circular-saw mandrel for hive-making by steam power. Will sell hives (in the flat) cheap for cash, or will take one-third pay in full colonies of bees. Hives in any quantity to suit customers, up to a carload per day. G. A. FARRAND,
3tfdb Rockport, Cuyahoga Co., O.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—This market continues about unchanged, except that stocks are somewhat reduced, and, possibly, a little firmer feeling on extracted. The demand, however, is not heavy for this time of the year, and we can't expect any better prices, as no one seems inclined to hold, and concessions all in buyer's favor. Choice 1-lb. sections were best at 15@16c; 2-lb., 13@14c. Extracted, 5@7c, according to quantity. *Beeswax* is in very light supply; would bring 22@25c for good average grades.

CLEMONS, CLOON & CO.,
Cor. 4th & Walnut St's., Kansas City, Mo.
Feb. 6, 1886.

NEW YORK.—*Honey.*—We note an improvement in sales of honey the past week, but prices continue to rule low. We quote as follows:

Fancy white comb, 1-lb. paper cartons,	13@14c.
“ “ “ “ glassed or unglassed,	12@13c.
“ “ “ 2-lb. glassed,	9@10½c.
Fair to good “ “ glassed,	8@9c.
Fancy buckwheat, 1-lb. unglassed,	10c.
“ “ 2-lb. glassed,	8@9c.
Extracted, white clover, per lb.,	6½@7½c.
“ Buckwheat “ “	5@6c.
Beeswax,	28@28c.

MCCAUL & HILDRETH BROS.,
Feb. 10, 1886. 34 Hudson St., cor. Duane St.,
New York.

CINCINNATI.—*Honey.*—Demand for extracted honey is extremely slow. Manufacturers, apparently, are taking a rest. There is only a fair demand for honey in glass jars and for comb honey. Prices are unchanged and nominal, with occasional arrivals, and a large stock on the market. We quote extracted honey at 4@8c on arrival, and choice comb honey at 12@14c in the jobbing way. There is a good home demand for beeswax. We pay 25c per lb. on arrival.

CHAS. F. MUTH & SON,
S. E. Cor. Freeman and Central Avenues,
Feb. 2, 1886. Cincinnati, Ohio.

NEW YORK.—*Honey.*—There is a slight improvement in the honey market. We have had a fair demand for comb honey, and a very good demand for extracted honey for the past two weeks. The indications are that there will be a good demand for honey during February, March, and April, especially for the finer grades. We make no changes in our quotations from our last issue.

THURBER, WHYLAND & CO.,
Feb. 11, 1886. Reade & Hudson Sts., New York.

BOSTON.—*Honey.*—The sale for honey for the past month has been as light as we ever knew, and prices are weak. One-pound, white clover, 13@15: two pounds, 11@13; extracted, 6@8.

BLAKE & RIPLEY,
Feb. 11, 1886. 57 Chatham St., Boston, Mass.

CLEVELAND.—*Honey.*—There seems to be quite a little activity in our market now for choice 1-lb. sections, which sell at 14@15c; 2 lbs., not very active at 13@14c. Old honey, of which there is some still on hand, is very slow at 10@11c. Extracted, 7@8c. *Beeswax*, very scarce at 25c.

A. C. KENDEL.
Feb. 11, 1886. 115 Ontario St., Cleveland, Ohio.

CHICAGO.—*Honey.*—Market without special change from last quotations; choice comb honey in ¾ to 1-lb. sections is wanted in this market when put up in desirable shape.

R. A. BURNETT,
Feb. 10, 1886. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—Was in the city yesterday and looked over the commission houses. Find honey dull. Best white in 1-lb. sections, 14c; larger sections a little less. *Beeswax*, 23@25c.

Bell Branch, Mich, Feb. 11, 1886. M. H. HUNT.

ST. LOUIS.—*Honey.*—The honey trade is slow. Comb, such as is on the market, is selling mainly at 12½c. Extracted, quotable at 8@10c. in cans, and 4½ to better for bbls., as to quality.

Beeswax.—We quote at 23c; demand good.

Feb. 11, 1885. W. T. ANDERSON & CO.,
104 N. 3d Street, St. Louis, Mo.

FOR SALE, very cheap.—Six barrels white-clover, extracted honey, and four barrels fall extracted honey (Spanish needle and goldenrod). Samples sent on receipt of three 1-cent stamps for each sample. EMIL J. BAXTER, Nauvoo, Ill.

HONEY AND BEESWAX.

We are now in the market, and will be during the entire season, for all honey offered us, in any quantity, shape, or condition, just so it is pure. We will sell on commission, charging 5 per cent; or if a sample is sent us, we will make the best cash offer the general market will afford. We will handle beeswax the same way, and can furnish bee-men in quantities, crude or refined, at lowest market prices. Our junior member in this deparment, Mr. Jerome Twichell, has full charge, which insures prompt and careful attention in all its details.

Sample of comb honey must be a full case, representing a fair average of the lot. On such sample we will make prompt returns, whether we buy or not.

CLEMONS, CLOON & CO.,
15-7db **Kansas City, Mo.**

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

FIRST IN THE FIELD!!
The Invertible Bee-Hive
Invertible Frames,
INVERTIBLE SURPLUS-CASES,
TOP, BOTTOM, AND
ENTRANCE FEEDERS.
Catalogues Free. Address
J. M. SHUCK, DES MOINES, IOWA.
4-3db

BeeKeepers
Supplies
Wholesale & Retail.
E.T.Lewis
TOLEDO
OHIO.

Orders filled the day they are received, except for bees and queens. 4tfdb

ITALIAN BEES IN IOWA.
60 c. to $1.00 per lb. Queens, 30 c. to $2.50. Order from new circular, sent free. 4d
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

FOR SALE. Cigar-box planer, Root saw-table, 10 saws, grooving-table, 2 sets of saws, shafting and pulleys, all good as new, used two years; give us an offer; must be sold. Also 60 colonies of my improved Italian bees, in two-story chaff hive, at $8.00 per colony. A Given fdn. press and wiring-machine, for $25.00. A lot of 2-story chaff-hives, tin roof, with 2 crates, $2.50 each; former price, $5.00; 100 smokers, Clark's, at 25 cts. each; $22.00 per 100; 1000 Simplicity wired frames at $1.00 per 100; 1000 in flat, at 75 cts. per 100.
4tfdb GEO. F. WILLIAMS, NEW PHILADELPHIA, O.

PLYMOUTH ROCKS a specialty. No other fowls kept for 6 years. Eggs, $1.50 per 13; $2.50 for 26.
4-5d S. S. JORDAN, Hiramsburg, Ohio.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XIV. FEB. 15, 1886. No. 4.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00, 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

Established in 1873.

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THE NERVOUS SYSTEM OF THE BEE.

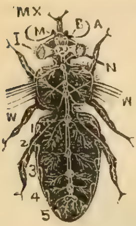
NERVES IN GENERAL, AND THEIR RELATION TO PAIN.

BEFORE entering upon the subject at the head of this article, let us briefly examine the nervous system of the human body, and discover, if possible, what is the function of the nerves; that is, what are painful and pleasant sensations—their origin and relation to motion. We can then better understand the nervous system of the bee.

Our bodies are provided with a great mass of nerves, of which the spinal cord, located in the backbone, and the brain, are the source from which these nerves branch out, and to which the nerves communicate all sensation. The whole structure is in form like a tree, the trunk of which is the spinal cord. From this are nerves, branching and rebranching throughout the whole body, until they become so small as to be microscopic in size, and so numerous that even the point of a pin, on coming in contact with the flesh, will communicate sensation to one or more of these nerves. As the nerves are more thickly crowded near the surface of the flesh, the surgical knife gives more pain while passing the skin than when it has penetrated further. Without these nerves we could feel no pain nor enjoy any pleasant sensation, as to see, feel, hear, or taste.

WHAT IS PAIN?

Pleasant sensation and pain are akin to each other, but different in degree. For instance, a warm fire is agreeable to cold hands; but if we should place those hands in the fire, we should undergo great agony. A certain amount of light is pleasant to the eyes; but direct sunlight gives pain. Now, the higher the intellect, and the higher the scale of creation in general, the more complicated the nerves, and, in consequence, the greater the power to enjoy pleasant sensation, and to experience pain. The lower the scale of development, and the simpler the structure, the converse is true. Hence man, of all creation, can experience the highest degree of pain or pleasure. On the contrary, the earthworm, when cut in two, by reason of its simpler structure feels comparatively little pain. True, it wriggles; but, so far as I know, the two parts perform the same function as before. You may cut a water-hydra (one of the simplest forms of animal life) into several pieces, and yet each will become as perfect as the parent. Then we infer that, accordingly, as the bee is simpler in general structure, and likewise in its nervous system inferior to that of man, so much less pain does it feel at the bungling hands of the apiarist. It certainly is a very wise provision of our Creator, in so constructing the lower forms of life that the latter, as a prey to the higher forms, may not undergo the agony that we would feel were we to be devoured by some terrible monster. The birds subsist upon insects and worms of all kinds, and God has so ordered it that these lower forms should not suffer, in proportion as we do. How do we know the lower forms of life feel less pain? Because microscopic examination shows their nervous system to be simpler as we proceed down the scale of animal life. The lowest class of animal life of which we have any knowledge, as the *Protozoa*, have no nervous system whatever, and are incapable of receiving any sensation, unless it be contact with other bodies. In fact, we find no nervous system until we come to the sub-kingdom of *Annuloida.*



Some one has said, that the bee is to the insect what the horse is to the animal. If we look at the cut opposite (after Cheshire), we shall see that the nervous system of the bee (represented by the white lines), though complete for the bee, is by no means as perfect as in that in the human body. As it would take a physician to point out the exact difference and marks of inferiority, I will not enter into full particulars here. The two medial and parallel lines traversing the whole length of the bee are what corresponds to the spinal column, though not the same in structure. Along its course, and intersecting at irregular intervals, are little disks with a white spot in the center of each. These are nerve centers, or, as they are termed, ganglia. From each of these ganglia, as you will notice, is a branch of nerves, some of which extend along the legs of the insect. As in the bee, we have something in our bodies corresponding to these nerve centers, or ganglia. They preside over the involuntary muscles, as respiration, digestion, pulsations of the heart, etc. It will be observed that they relieve the brain of a large amount of work. If the brain had to preside over the hidden machinery of our bodies, besides controlling our mind and actions with reference to the outside world, it would be like a man with too many irons in the fire. We should forget to breathe, or to make the heart beat, while performing some of the difficult problems of life.

Returning to the cut, if we touch the foot of a bee the sensation travels up the leg, as it were by electricity, until it reaches its ganglion. The impression, according to Cheshire, takes several courses, some communicating with the brain, and others transmitting the impulse to the other legs. The effect is almost instantaneous, and the legs (if the bee is held by the wings) will set up a vigorous kicking. To illustrate further the difference between the ganglia and the brain, as before stated, let us cut off the head of a bee, and note the effect. The brain, represented by the little lobes between the eyes in the cut, is now completely separated from the body of the bee, and yet the wriggling goes on as before, and will continue to do so for five or six hours or more. With the tweezers we grasp one of the legs. The other legs will come to the rescue, and struggle vigorously to push off the offending object. The sting, too, makes a desperate attempt to thrust out its fangs. In, fact, the headless victim seems to be so far in possession of his faculties as to be actually alive. A mud-turtle, as I have found by repeated experiment, will crawl about, a week or more after his head has been completely shot off. Do the bee and the mud-turtle live, and do they feel pain after decapitation? Facts seem to indicate that they do not, and that these singular movements are only manifestations of the nervous ganglia. In lower animals, these nervous centers seem to be possessed of more functions than those of our body. If a man is beheaded, all outward movements of the body are suspended almost immediately; but not so with the bee. In removing the head of a bee, the power of motion and the seat of consciousness are completely separated, and the line of communication between the nervous ganglia and the brain has been broken. How do we know that, therefore, a bee does not suffer pain? By analogy, and experiments upon the human family. Well-authenticated cases are related in medical works, of soldiers in battle being shot in the backbone, thereby completely severing the spinal column. Below the wound, paralyzation sets in throughout that part of the body. If the feet be now tickled or pinched, they will jerk back violently; but the wounded soldier has no knowledge of these movements, except as he sees with his own eyes what is transpiring. After the spinal cord is united, sensation returns to the affected parts. The spinal cord in the neck of a frog may be severed, and the phenomena will be almost identical with the case just mentioned. From these, you observe that direct communication must be established with the brain, in order that pain from bodily injury may be felt.

The physician gives cloroform and ether, either to paralyze the nerve centers, or to render the patient unconscious. In both cases he will feel no pain while the operation is going on. So with the bee. The seat of consciousness is removed, when the head is cut off. He may wriggle for hours, and yet feel no pain. Like the mud-turtle, when his head has been cut off, as the boy said, "He is dead and don't know it." Ernest R. Root.

BEE-TALK.

HOW WE DO OUR EXTRACTING.

We usually keep from 50 to 60 colonies in an apiary, spring count, and we think that number about right. That gives us a fair day's work for our crew of boys, after going from four to nine miles with teams to get there, and gives us time to go home and pack our honey in barrels, and we think, to get the best returns in honey, that number is large enough. As we live in the borders of a town of 4000 inhabitants, there are plenty of boys whom we can hire, as many of them have nothing to do, and are glad to get a job. We hire them from 12 to 20 years old. Beginning with the 12-year-old boy, we pay him the first year $6.00 or $8.00 a month. That depends on what kind of a boy he is. We hire for the lowest figure, and give him more if he earns it. The next year, if the boy has been faithful, we hire him again, and give him about $2.00 more a month, and about one month in a year is as long as we have use for the most of the boys. As we have 11 acres of land to cultivate, some of it in small fruit, we hire one or two of our best boys in the spring, about April 1st, and keep them all the season. We commence to extract about the 15th to the 20th of June. Then we take in two more young boys; and when we have gone over all the bees once, we put on our whole force.

The last two years, including myself and my son, our force has been ten hands, besides one carpenter at work in the shop at home. I have no doubt but some of the bee-masters will laugh at the amount of help we employ to do our work. But, recollect we spend from 1½ to 3 hours on the road, going to our work every morning, and as much coming home again; go with two teams, one to carry the boys and the other to haul the honey and traps we have to take along, and we think we are working to the best advantage. Perhaps we are not.

We have our apiaries laid out in rows, so arranged that we have what we call Main Street running through the center, about 20 feet wide, for a wagon-road. Just about the center of the yard, and by the side of Main Street, we locate our extracting-house, which is a temporary affair. We set 4 posts in the corners, just 10 feet apart outside measure, and 8 feet high above the ground. Around the bottom we nail boards 12 inches wide. Around the top we nail on another round of 12-inch boards, so now we have a 6-foot space with no siding on it. For siding we take two breadths of cheese-cloth, 40 feet long, and sew them together side by side, making a piece 6 feet wide and 40 feet long. This will just reach around our house. About one foot apart, all along the edge of this cloth, we sew on strips of leather, about one inch wide and 6 or 8 inches long (we cut them from old boot-legs), leaving the leather clear of the cloth about 2 inches. To put on the siding, we commence at one corner, nail through the leather strips to the corner post one end of the siding; now nail all along the top edge of the cloth through the leathers, to the bottom of the top round of boards; go clear around the house, except the last 3 feet; there we have a wire-screen door, with spring to shut it; or, in the absence of the wire screen to cover the door, we nail our siding to the top of the door. As it is 40 feet long, and the house 10 feet square, it will just reach. Now fasten the bottom edge to the bottom board the same way, and we have a siding bee-tight, if we keep the door shut.

For the roof we have a cloth cover 10 feet square, with leathers sewed on the edges the same as the siding, which is nailed to the top round of boards, and held up in the middle by two pieces of 2×4 scantling, just long enough to reach across the top from one board to the other. The framework of the house is made just alike in each yard, and, of course, stays there; but the siding and top cover we take with us and put it up every day. We can put on the top and siding in five minutes, and take it off quicker. We are going to improve the roofing of our extracting-house. Sometimes a shower will come up suddenly, when we are at work, and our thin cloth roof, put on flat, doesn't shed water. We are going to make a top cover of duck, and put it over a ridge-pole, elevate the ridge two feet above the eaves, draw the cloth tight, and, as there will be no bearings from the ridge to the eaves, it will shed water. Now we have our house, and are ready for work.

We have an extractor for each of our apiaries, and keep them there during the honey season. We have kegs that hold 160 lbs. of honey each. We take as many of them with us as we expect to fill. Be sure to take enough, as it is easier to take back an empty keg than it is to bother with an overplus of honey. We use one keg for a strainer-keg, having a good-sized faucet near the bottom, to draw out the honey. We tie a square yard of cheese-cloth over the open end of the keg, and let it sag into the keg enough to hold a large pail of honey. In the corner of the house, handy to the extractor, we dig a round hole, one foot deep, large enough to set in one of our honey-kegs to be filled; close by the side of the hole we set another honey-keg; on that we set our strainer-keg, with faucet over the keg, in the hole, which has a tunnel in it, and in the tunnel a wire-screen strainer to catch any stray bees that may be liable to get into the honey in passing from the strainer keg to the store keg below. When one keg is filled we roll it out and put under another. We set our extractor about the middle of the house, fronting the door. As the combs come in from the field or hives, they are placed just by the right-hand side of the door. Now, half way from the door to the extractor we place a honey-keg on end, and on that we place our cap-catcher. We use a wooden keeler, holding about a large pailful. Two hands work in the house—one experienced hand, and a boy. The boy stands by the uncapping-stand, takes up a comb from where they are set when they come in from the hives, uncaps it, and sets it down, leaning it against his stand, on the left side, between him and the extractor. That is his work—uncapping combs, and he doesn't have any time for fooling. The man at the extractor picks up the combs at his right hand, extracts them, and sets them down by the left side of the door, empty, ready to go back to the hives. The combs have made just a half-circle since they came into the house, and are now just by the side of the door, where the outside boys can reach in and get them, without going in and getting in the way. We have a large tin pail made for the purpose, that sits under the extractor, in which to draw the honey and pour into the strainer-keg, which stands in the corner, at the left of the man who runs the extractor; and it is his part to extract and fill the kegs, and look after his boy and keep things in order in the house.

Now, as we worked ten hands last year and the year before, there are eight at work among the bees. Take one of the most experienced hands, and give him two boys to help him; then make up another trio of boys the same way. Three hands make a good set to work together. After making up the two sets there are two hands left, and that is usually myself and the greenest boy in the lot. Now, one set of hands takes with them a smoker, and each a brush to sweep bees from the combs, and what we call a swarming-box. It has a bottom and three sides, leaving one side open. Set that down by the side of the hive to be worked; give the bees a little smoke; turn back the cover and pry up the honey-board, take out the movable front and front cushion. Now our frames are standing on the bottom, flatwise to us. Just take a glance to see if the queen is in sight; if not, take out the first frame, and set it into the swarming-box, with the back side of the comb toward the open side of the box. We want to find the queen, and we have parted two combs, so there are two places to look. Let the foreman who takes out the combs look in the hive, and his assistant look in the swarming-box. If she is not seen, then take out another comb, and look until all are out; and then if the queen has not been seen, look over the few bees that remain in the hive. Sometimes she will be found there. If she is found we put her in a cage until we are done with the hive, and then let her out into her own hive. It is very seldom that we miss finding the queen when we are taking the combs out of the hive. If we should fail to find her we look carefully when we sweep the combs, when she will usually be found. If we fail to find her at all, we don't take any of the bees to make up new colonies.

Well, when we have the combs out of the hive we sweep the bees all off, into the hive, and send the combs to the extracting-house by the small boy. The first hive we open we leave without combs until we get through, and then fill it up with the combs of the last hive opened, so that no colony gets its own combs back again. Now, after each set of hands has a hive shut up without combs, and the combs are all in the house together, then each set opens another hive, finds the queen, cages her, and then the foreman and one of his assistants take a comb by the corners and sweep each one side of the comb—brushing the bees either into the hive or swarming-box. When they have four or five combs clear of bees, the other boy takes them, two or three in each hand, and carries them to the house, and brings back as many empty combs and sets them into the hive. By that time the rest of the combs are ready to go to the house. When the boy takes them and brings back enough to fill out his hive, he fills up the hive and liberates the queen, and then shuts up the hive. By the time he gets his hive done, the other two boys have some combs from another hive, ready to go to the house, and so we go, some taking out combs and sweeping off bees, others going and coming with combs, and shutting up, others extracting and putting up honey, all as busy as bees, while the boss does what he can and oversees the whole yard. We take our dinner and supper with us, and have a picnic every day. When we get done we down with our tent, load up, and then hitch up and drive home, and then draw our honey out of the kegs into barrels in the honey-house, and mark the date of the year and day of the month on each barrel; also mark × for the first extracting, ×× for the second, and ××× for the third, etc.

During the extracting season we have very busy times. If we lose a day, from any cause, it just means a loss of 1000 to 1500 lbs. of honey. The most we ever took out in one day was the 20th of July, 1885, when seven of the boys, including my son, went four miles and took 2075 lbs., and I had two boys to help me in the home yard, and we took 880 lbs. the same day, making 2956 lbs. of basswood honey. There were 15 days that we took 1000 lbs. and over each day, in the season of 1885.

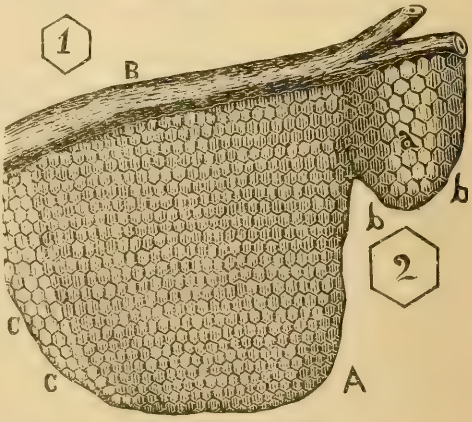
Platteville, Wis. E. FRANCE.

Why, friend France, you almost take away one's breath. I do not know that we have before had an account of where extracting is done with such system as you manage it; and, best of all, instead of advertising for experienced help, you take boys right around your own home—common, every-day boys, such as all of us find everywhere. These boys enjoy the work, of course they do. It is a "picnic" to them, as you say, and yet they earn money, and learn industry and thrift. The education you give them is, without doubt, worth more than the money they receive, and you are helping to solve this vast problem of finding something to do for a world full of uneasy and discontented people. I can easily understand how every thing goes along like clockwork, when the bees are not disposed to rob; but let a dearth of honey come, when the hives are full, and, oh my! what a time! But very likely you keep so well up with your work, that, when the dearth comes, you are ready to stop. I know you have had some experience with robbers, from the precautions you take; and if such precautions are not taken, the bees often get to robbing when there is *not* a dearth. Now, friend F., you have given us a glimpse of your busy home, and we want to know more. How do you sell all this honey? What do you do when swarming time comes? How much increase do you make? Tell us more about it. With ten men and boys to look after, I can readily imagine you have all you want to do, without working very much yourself, and I shouldn't wonder if you would have abundant need of that "greenest boy" to run errands for you. It reminds me a good deal of the way we often manage here on our own grounds.

SOMETHING MORE ABOUT THE APIS DORSATA.

HOW THE COMB IS BUILT; SIZE AND DEPTH OF CELLS, ETC.

FRIEND ROOT:—Herewith I send a drawing of *Apis dorsata* comb. I hope it will make my description clear. I shall try again this year, if I can get time, to investigate this bee. I wish you could be with me here a month or so this cold season. I would show you all the bees of the country, and, best of all, I would show you 81 churches, nearly 2500 baptized adult members, with schools, etc., that you might rejoice with me in the ability of God's word, in the hands of the Holy Spirit, to lift the lowest.



APIS-DORSATA COMB.

A is the brood comb, which is of a pale amber color. Cells here are beautifully regular, and comb perfectly straight. See measurements formerly given. B, is a limb of a tree. C, new brood-comb, and enlarged in direction of C C; *a*, honey-chattie, spherical in shape. Deepest honey-cells are at *a*, and three to the inch; *b*, shallowest honey-cells. Honey-cells are so arranged in honey-chattie, as regards length, as to form a cylindrical shape on the limb. No brood is ever placed in "honey-chattie." It contains pure white, or pale amber honey, and the comb for honey is beautifully white.

Toungoo, British Burmah. A. BUNKER.

For an explanation to the above cut, our friends are referred to page 342 of our issue for May 15, 1885. You will find there that I could not quite understand friend Bunker's description of the peculiar comb which the bees build, expressly to store honey in. This comb is named, as you will notice above, "honey-chattie." The large comb occupying the central part of the engraving is the single brood-comb attached to the limb. By referring to the former article mentioned above, we find that this honey-chattie is sometimes as much as six inches in thickness, making the cells on each side three inches in depth, properly sloped to prevent the honey from running out. Fig. 1 gives the size of the cells for the brood-comb, being about like our drone-comb. Fig. 2 shows the size of cells of this strange honey-chattie. By the way, friends, wouldn't it be a curiosity indeed, if it were possible to get one of these great chunks of honey across the ocean, to be shown at some of our national conventions? What a crowd it would bring! Friend B., don't you think it possible? We are anxiously awaiting the result of your experiments in trying to domesticate *Apis dorsata*.

THE TEMPERATURE OF THE EARTH.

SOME VALUABLE FACTS, FURNISHED BY FRIEND S. CORNEIL.

In view of recent references to the temperature of the earth, the following facts may be of interest to the readers of GLEANINGS. As regards temperature, the crust of the earth, down to the point where the internal heat is met with, may be divided into three strata. In temperate climates, the limit of the first stratum is reached when the thermometer ceases to indicate the diurnal changes of temperature at the surface. This is at a depth of three to five feet, depending to some extent upon the nature of the soil. From this point down to 40 ft., and in some cases to 100 or 120 ft., according as the material passed through is solid rock, clay, sand, or water, there is a stratum, the temperature of which is affected by the changes in temperature of the seasons only. Below this there is a stratum having a constant temperature, but whose degree of heat depends upon the mean annual temperature of the locality. After this stratum, having an "invariable temperature," is passed, the temperature of the earth increases 1° for every 50 to 75 ft. in depth. The following quotations from authorities on the subject will perhaps be appreciated by the reader:

> In temperate climates the temperature remains unchanged at a depth of 3 ft. from the surface, from day to night. At 20 ft. the annual temperature varies but a degree or two. At 75 ft. below the surface the thermometer is perfectly stationary. In the vaults of Paris observatory, 80 ft. deep, the temperature is 53°. In tropical regions the point of unvarying temperature is reached at a depth of one foot.—JOHNSTON'S "*How Crops Feed.*"

> It is well known, that there is a limit of depth within which the variations in the temperature of the air make themselves felt. In temperate climates this is from 80 to 120 ft. Springs which rise at a lesser depth than 100 ft. have a temperature which varies with the seasons, whilst waters rising from a greater depth have a constant temperature, depending only on the heat existing at their source. Springs whose temperature is above the mean annual temperature of the locality, are called hot springs.—*From the German of* FRANZ SCHNACKHOFER, *Professor at Imperial and Royal School of Agriculture, Vienna, quoted in "Fuel and Water."*

> When the bed which forms the reservoir for springs is at such a distance from the surface as to be beyond the zone of season changes, and yet within that which is influenced by the climate, the water has a temperature equal to the mean annual temperature of the locality where it rises. In Britain this zone of constant heat is from 200 to 300 ft. deep. After this is passed, the temperature increases 1° for every 50 or 60 ft.—*Chamber's Encyclopædia.*

> If the thermometer be placed in a deep cavern, the variations disappear, and one uniform temperature is registered under all circumstances. What that temperature is, will depend principally on the climate of the locality, the constant temperature being nearly the mean annual temperature of the surface.—HUXLEY, *in "Physiography."*

It has been stated, that the temperature of the peculiar caves beneath the city of Paris, in one of which the great clock of the observatory is kept, some 80 or 90 ft. below the surface, is 50°. The mean annual temperature of the city is 57°. As we ascend mountains, the temperature decreases 1° for every 334 ft. The King's Chamber, in the Great Pyramid in Egypt, is about 300 ft. above the level of the adjacent plains, and is protected on all sides by 180 ft. of solid masonry. Its temperature is 68°. The mean annual temperature of Cairo is a little below 70°. Since the degree of heat in the stratum of "invariable temperature" so nearly agrees with the mean annual temperature of the locality, the following list may be interesting. The figures indicate the mean annual temperature in degrees Fahrenheit:

Toronto, Ont., Canada	44	Boston, Mass.	48
Quebec, Quebec	41	Cleveland, O.	49
Eastport, Me	41	Columbus, O.	53
Pembina, Dak.	35	Cincinnati, O.	56
Port Huron, Mich	45	Detroit, Mich.	48
Grand Haven, Mich	47	Erie, Pa.	50
Burlington, Vt.	46	Philadelphia, Pa.	53
Milwaukee, Wis	45	Chicago, Ill	49
Buffalo, N. Y.	47	Des Moines, Ia.	50
Portland, Me.	47	Leavenworth, Kan.	53
Newport, R. I.	50	Cairo, Ill.	58
Oswego, N. Y.	48	New Orleans, La.	69
Albany, "	48	St. Paul, Minn	44
Duluth, Minn.	40		

Of course, within a few feet of the surface the temperature will be higher than the above figures in summer, and lower in winter. On one occasion, when the outside temperature was 41° below zero, the air came in through my sub-earth pipe at 38° above; that is, in passing through 170 ft. of 9-inch sewer-pipe, laid about 5 ft. below the surface, the air acquired 79° of heat. I have observed that the air is not warmed quite so much toward the close of a cold winter, owing, I suppose, to the gradual cooling of the earth around the pipe.

There is an atmosphere circulating below the surface of the earth, as well as above it. This "ground air" extends down to the "ground water," the level of which is indicated by the level of the water in wells. The nature of "ground air" has been examined by Prof. Nicholls (see Sixth Report of Board of Health, for Massachusetts, for 1875) and others, and it is found to be so very rich in carbonic acid that, at a depth of 13 ft., it is sometimes irrespirable, and will extinguish a light. The amount of oxygen is found to be in a measure inversely as that of the carbonic acid. It is this soil air which sometimes proves fatal in deep wells, and not carbonic acid separated from the air above, and sinking into the well by its superior weight, as is often supposed. Intelligent bee-keepers will at once see that, in order to bring pure air into the cellars, it will not do to use drain-tile for sub-earth pipes. Cast-iron water-pipes, or sewer-pipes cemented at the joints, should be used. A nine-inch pipe of the latter, 170 feet long, cost me about $110 when finished.

Ernest's experiments are watched with interest; but if he will look up Joule's experiments in determining the mechanical equivalent of heat, he will see that the temperature of the water in the pail, after being pumped up, was not exactly the temperature at the bottom of the well, 97. ft deep.

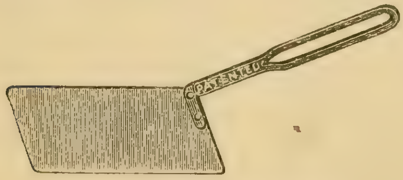
Lindsay, Ont,, Canada, Feb. 1, '86. S. CORNEIL.

I am sure, friend C., that we are very much obliged indeed for the very full and complete manner in which you have discussed this matter of the temperature of the earth. In regard to your caution, however, at the close of your article, it seems to me that carbonic acid is not common enough at a depth of from three to five feet to make it necessary for us to go to the very great expense of either iron pipes or burnt sewer-pipes with cement joints. I confess that I have never before understood how it was, that carbonic acid came to be present in wells and mines.—There is one point, and the one that concerns us most, in regard to this matter of the temperature of our earth, and I think it has hardly been touched upon. It is this; for protecting bees or other domestic animals, it is not necessary for us to go into the ground so far that we have an absolutely unvarying temperature. A very little banking of earth makes quite a difference, I have discovered, and all we need to do is to make our cellars or outdoor caves with their sub-earth ventilating-tubes deep enough to get pretty nearly the temperature we desire. If I understand you correctly, the temperature I gave of Mammoth Cave was not to be taken as a guide to the mean temperature of old Mother Earth in all localities, but simply the mean temperature of that part of Kentucky.

A HONEY-KNIFE FOR ONLY A DIME.

SOMETHING FOR BEE-KEEPERS WHO HAVEN'T MUCH MONEY.

HOW often do we find a tool, worth only a few cents, that will do the work of one that has cost a dollar or more! I have sometimes had such an experience, and felt out of patience with myself to think it never occurred to me that a cheaper form would answer every purpose. Below is a picture of a honey-knife that illustrates the point.



OUR TEN-CENT HONEY-KNIFE.

The blade is made of a thin slip of steel, in the form shown above, 2x4½ inches. The handle is made of malleable iron, securely riveted to the blade. The blade is so thin that but a very few strokes of a whetstone, oilstone, or even a scythestone, will give it a keen edge, for there is so little steel to grind away that the sharpening can never be a laborious process, and yet the quality of the steel is so perfect that it seems almost impossible to bend or injure it. You can sharpen it on one side or both sides, as you choose. You can use it for uncapping, or for cutting up combs in transferring; and for the latter it is, in my opinion, superior to any other knife made, at any price. For scraping off wax from honey-boards, tops of frames, shipping-crates, or even wide frames and sections, no other tool has been brought out any thing like it. The wide-pointed putty-knives we have sold so extensively for the purpose come pretty near it. But this answers every purpose of the putty-knife, besides being a honey-knife that may be equal to any. The sharp point will be found to be very convenient for a great variety of purposes; and after all, if you leave it out in the rain, or forget it, you are only ten cents out. A good many times I would give ten cents for a new one, rather than go after the old one, when it happens to be some little distance away. It seems to me it would pay almost every bee-keeper to have three or four of these handy little implements; that is, if he has a good many hives. We notice the cut is marked "patented." This was done by the inventor, who intended it for a knife to use in the kitchen. But if you pay the ten cents, you can use it in the kitchen, or out among the bee-hives, just as you choose. I shouldn't wonder if it would pay you to get one for your wife also. Price 10 cts.; 5 for 45 cts.; 10 for 80 cts.; or 100 for $7.50. If wanted by mail, add 5 cts. each extra for postage.

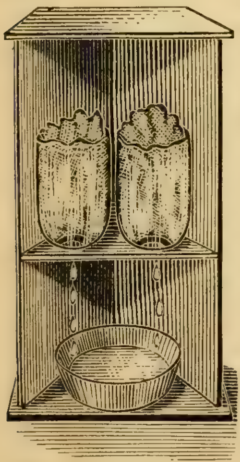
REVERSIBLE BEE-HIVES AND REVERSIBLE FRAMES.

SINCE the description of Heddon's hive and arrangement, so many letters have come in, describing hives and various arrangements for reversing hives as well as frames, it begins to be almost beyond my strength to go through the descriptions and give an opinion of them. The greater part of them are nothing particularly new. Years ago, Dr. Conklin, of Delaware, Ohio, sent me a hive to try, which had frames perfectly square, and set in the hive so one corner of the frame was down. These frames could be used with any one of the four corners down; but all the time I used it, it never occurred to me to take advantage of the ease with which these frames could be reversed. At the Ohio State Fair last fall, Mr. A. C. Benedict, of Bennington, O., had the hives on exhibition, with such frames. He has used these frames, I believe, for twenty or thirty years; and although they can be placed one side up just as well as another, he has never practiced reversing them. He says he does not want them reversed. Is it not a little singular, how progress and improvement and fashions revolve around, and once in about so long a time they come back to about the same old thing again? Even shallow sections, and hives used one above the other, have been in use for years, and have been repeatedly patented. Our old English works give pictures of them now; and before the advent of movable frames it was customary to have shallow hives with just the same depth of comb that Heddon uses, and these were worked two tiers, three tiers, and even four tiers high. Some of them used slats to induce the bees to build their combs regular, so that the owner might hold these shallow sections up to the light and look through them. A good many are working at a plan for movable frames that may be lifted out, no matter which side up the hive happens to be. I don't believe, friends, I would waste very much time or money on this matter just yet.

A NOVEL WAX-EXTRACTOR.

AN INVERTED FRUIT-JAR WITHOUT BOTTOM BEING USED FOR THE PURPOSE.

READING the article on p. 855, on the above subject, caused me to smile over an experience of several years ago. I wanted something to put bits of comb in, and scrapings, to save them (I was not home), so I asked for a pan, but soon found out "any thing was good enough;" and, chancing to see an old two-quart fruit-jar without bottom, and with the top on, I took that and set it bottom up. It being a warm sunshiny location, the more I put in the jar the more it settled, and soon began to melt; and in three or four hours there was perhaps a pint of as nice melted wax as ever ran out of comb. The jar-top being metal, a steel point soon made several holes in it. This I placed over a pan on a board with a hole in, and it soon gave a cake of wax. The fruit-jar extractor made quite a laugh on me, and stopped the women-folks from sputtering about the "nasty muss of wax-making." There have been more than 20 of those little wax-extractors made in the last seven or eight years. The first one gave birth to more improvements, so that now some are being used thus: Take a piece of coarse wire cloth, crowd it down the can; on top of that some fine wire cloth like queen-cage cloth, then another piece cut a little large and put in so as to bulge upward, and your jar is ready. For the stand, cut two boards 14 in. wide and 24 inches long; two boards, 14 in. square, and a triangular piece 12 in. on two sides. These sides meet and form a right angle. Bore a hole in the center of the triangular piece, large enough to let the top of your fruit-jar in, or two holes for two jars. Nail the two long pieces together, and to the ends nail the two pieces 14 in. square, as shown in the cut. Now, 10 in. from the bottom, nail the triangular piece. The adjoining cut will make the matter all plain. Into these jars I have put bits of comb honey, and even old brood comb will clean up in tiptop shape. As old bottomless fruit-jars are generally handy, or even large glass bottles or demijohns, the time, making, and expense of the woodwork is small. As a preventive of worms infesting the wax, it is a saving over keeping the bits till enough to pay for melting, and I think more wax is actually obtained. The amount of honey run through is not going to make robbing, because it is always in that place, and the bees will look for some every time work is being done. The bees are always peaceable about it.



THE FRUIT-CAN WAX-EXTRACTOR.

The extracting is not all it is good for. A few bits of smoker wood can be kept dry in the back corner under the three-cornered piece. It is a stand upon which to put queen-cages, a smoker, or dozens of other things. Two fruit-jars, mounted as I have described, will keep every thing in the shape of comb and broken honey all melted up, from an apiary of 20 to 50 colonies. One of the extractors will run off from 5 lbs. to 25 lbs. per day. I have seen 4 lbs. run through two of the 2-qt. cans in one hour, all from the bits of new comb, drone brood, scrapings of boxes, etc. So you see they are not so slow after all.

DISTURBING BEES IN WINTER, NOT ADVISABLE FOR THE NOVICE.

In your foot-note to G. M. Doolittle's article, p. 856, you say, "Bees can, perhaps, be handled successfully;" in other words, examinations can be made during winter upon the bees for scientific purposes. Well, I can tell you, beyond doubt, that it has been done without any apparent harm, and, like Mr. D.'s case, seemed beneficial in result. In the winter of 1883 one hive was examined almost daily, regardless of the weather; and from 1874 to 1880 there were perhaps a dozen hives experimented with without loss, to ascertain the heat of the bees during various changes, and how far the hoar frost would reach between the ends of the combs; the comparison of differently constructed hives, thick and thin lumber, and in various exposures, and how much more honey a swarm being often disturbed would consume than one let entirely and severely alone. Successfully examining hives for various purposes, forces myself and others to say to all but the expert, "Let them alone from the time of packing till the cleaning-out in the spring, during good flying weather, because, so far as I can learn, there are more queens spoiled, and more stocks made queenless, by the improper handling of the bees in the spring, than from any other cause, and yet every man knows what he is doing, in his own mind (I find many such among novices), because Yankee ingenuity is, in very many cases, conceit."

ABSORBENTS IN WINTER.

Mr. Heddon, on page 854, referring to moisture, reminds me of experiments relative to the use of wet cloths, and that the amount of seemingly air-tight sealing can be successful, and under what conditions. In 1878 I repeatedly took out and exchanged many of my top cushions, to dry them, and I always found them wet on the upper side. This induced the experiment of melting sugar into a solid block, made by pouring the liquid into a frame, and placing over the cluster; give no other food, and contract the space of the bees to the lowest point. Then envelope the whole in a non-porous material, to prevent the escape of any moisture. The hive is in this manner thoroughly packed and protected every way, and gives only a small entrance, thus causing a condensing of moisture on the slab of sugar. This furnished abundant liquidation for the winter supply, without an apparent cause of the bees going for water; but for this purpose, hermetical sealing of the division-board spaces is necessary as all others, or the side packing will take up what would pass out at the crack at the ends of them. This proves that, without close attention to minute details, success turns into failure.

H. L. JEFFREY.

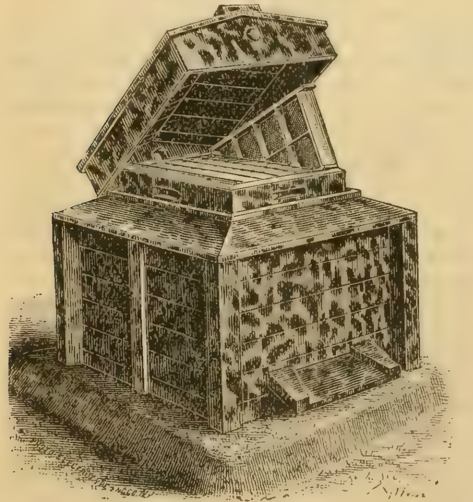
New Milford, Conn., Dec. 23, 1885.

I would suggest, as an improvement to your trough, that the inside be lined with tin. This doubtless would add very materially to its working power. It is not all of us who have jars lying around and broken off just at the right place for the above purpose. Having had some experience in working glass for chemical purposes, I will explain, for the benefit of those who may not know, how the bottom of jars can be removed. Around the jar where you wish to sever the bottom, draw the point of a red-hot poker. As the latter passes around, the glass will crack. In place of the 2-qt. jars mentioned above, you can purchase very cheaply at the drug-stores a gallon bottle. While this would add but little to the expense it would be much more convenient for taking large pieces of old comb. ERNEST.

A MOVABLE BOX IN UPPER STORY OF CHAFF HIVE.

FRIEND BISH GIVES US HIS EXPERIENCE IN THE MATTER.—SEE GLEANINGS, P. 12, 1886.

MY experience of three years with movable upper stories tells me that a box can not be tolerated. First, its thick lower edge kills too many bees in putting on. It is a box you can not use for any other purpose. But the Simplicity body does away with both objections. Friend Cross, on page 12, 1886, proposes to make a chaff hive longer, and to utilize vacant space at sides, with brood-frames. I find an objection there. It leaves a loafing-space for the bees between the wall and box, and they are sure to get in the way every time the cover is removed, taking time to replace it. I find the best remedy is (where new hives are being made) to change the dimensions of the chaff hive so a Simplicity body just goes inside of upper story, leaving ¼ or ⅜ inch space all round, and the lower story of proper breadth to hinder the bees getting up. Below is a cut of a hive I am making, especially arranged to take a Simplicity hive in the upper story.



THE C. P. BISH CHAFF HIVE, SHOWING THE SIMPLICITY BODY, FILLED WITH SECTIONS.

The hive as now made is 3 inches narrower than the one the above cut was taken from.

The outside of Simplicity body, 15⅝ inches, is just right for lower story; the double wall of upper story of chaff hive is only six inches high, instead of ten. Six inches is sufficient room for a cushion in winter, and makes it handy to catch the hand-holes of Simplicity body, and not so high to work over. The cover will have to be deeper, to make the difference. I find some colonies of bees build some comb between top-bars and bottom-bars of frames, and some do not. The space is Simplicity space, of course. C. P. BISH.

Petrolia, Pa.

Friend Bish, your idea of making the chaff hive lower, and making the cover a little higher, so it is, in fact, virtually the same thing as a cover for a 1½-story hive, is quite an idea, and no doubt it will answer just about as well for wintering as the full depth of the hive. The only objection that I know of is, that you do not get as many sections as where the wide frames are hung directly in the upper story, as we have them; and for extracting you would not get as many combs in the upper story for surplus. As it makes a little more machinery, I think I should prefer our style. Your mottled hive looks very pretty, and that a good substantial alighting-board is also a nice thing to have, as we know by experience.

MOVING BEES IN COLD WEATHER.

HOW TO CORRECT FALSE STATEMENTS.

I MOVED seven colonies of bees twelve miles on the 13th of Jan., when the temperature was 10° above zero. This was a day or two after the noted four days' blizzard. I used a sled, as the sleighing was excellent; no mishap of any kind, and the bees are to-day in the very best of condition (in cellar). I shall now have an opportunity of testing the amount of injury, if any, in moving bees in mid-winter. Of the 61 colonies I have in cellar there has as yet been no water dripping from the entrances, as is sometimes the case. I attribute this to the fact of maintaining a higher temperature in the cellar. With the exception of a few days, I have kept the temperature at 46 to 50°.

The false and sensational statements going the rounds of the papers, regarding comb honey being manufactured, and put on to the market, are having their effect, and no mistake. I was somewhat annoyed, some time ago, by hearing a very prominent merchant explaining to some very interested listeners, how, that "nowadays they manufacture the very nicest kind of comb honey without the aid of bees, etc." Of course, I "took the floor" when he got through, and in less time than I can write it I corrected him, and he confessed that he did not *know* that it was so, but that he had read statements to that effect in the papers. I took the opportunity to explain that the manufacture, by artificial means, of comb honey, was entirely beyond the possibility of the most advanced art; and I also referred him to your $1000 challenge for positive evidence of such manufacture. Now, when we come to reflect a moment over the wonderful achievements in the arts and sciences of this progressive age, we need not be at all surprised that the reading public, who have no practical knowledge of apiculture, will readily believe that the successful imitation of the nicest comb honey is entirely within the possibilities of modern science. One of the successful ways to correct this damaging misapprehention is for bee-men everywhere (who can rightly handle the subject) to furnish articles to their county and local papers, which will readily be admitted, and in strong, clear terms, meet this popular error. There is no use to meet it in an abusive manner, but, rather, in that kind and candid manner that invariably carries conviction.

Another way to meet the matter is for honey-producers to guarantee every pound they sell to be absolutely pure. I have no fears as far as one's local custom is concerned; but when one has "a bit" more than he can dispose of at home, is where trouble seems to be ahead.

8—D. E. BRUBAKER, 31—61.

Maxwell, Iowa, Jan. 28, 1886.

Friend B., your suggestion is wise and sound. The celebrated Mr. Edward Murphy is now holding a series of meetings in Medina; and his great stronghold—in fact, the one great thing that gives him such wonderful power in banishing intemperance from our land is, that he deals directly with the *people* instead of laws and legislation. If he can get every man, woman, and child, in a town to wearing the blue ribbon, indicating they have signed the pledge, saloon-keepers would have so little custom that they would pull up stakes and move, or quit the business. The number who would violate a pledge, with their own signature at the bottom of it, would be too small in almost any community to support saloons. Well, now, if we can get the truth of this matter before the people, in regard to artificial comb honey, by inducing local papers to correct the statements, the whole thing will die a natural death, and it seems to me this is the way to do in dealing with any kind of sin—strike it where it starts, right in our homes, and in our family papers.

DO IMPORTED QUEENS PAY?

FRIEND DOOLITTLE'S EXPERIENCE IN THE MATTER.

TO the question in editorial (page 75, GLEANINGS for Jan. 15), "Do you get more honey from Italian bees, say one or two generations from Italy, than from stock bred four or five years in our own country?" I answer, no; and, as a rule, not as much. From the experience I have had with the imported stock as above (having had only one imported queen, but many from different breeders that were reared from an imported mother, besides those reared from the one I had) I much prefer queens reared from their best strains of home-bred stock by N. N. Betsinger, Dr. G. L. Tinker, Aaron Benedict, Dr. J. P. Wilson, J. M. Brooks, and others, to any of the imported stock I ever saw. The men named above are breeding bees for quality, and the bees show it by the large yields of honey they bring in, while the imported stock show that no care is taken in breeding them.

For the last twelve years I have been breeding for the sole quality of honey-gathering, and to-day I would not trade one of my best queens for any dozen of the best queens from imported stock I ever saw. What gives vitality to our stock is a direct cross rather than in-and-in breeding, and this is what gave the imported stock so much favor a few years ago. Prior to this time, parties in the U. S. had bred in and in for color, until a feeble race was the result; and, fearing that the Italians were to run out, some of them went to importing again. What was the result? The young queens from the imported queen mated with the drones from the home-bred stock, which gave a direct cross, thereby giving great vitality to the bees, and the cry was raised that queens from an imported mother were superior to those bred in our own country, causing it to come to pass that a breeder must advertise with a * in front of his name, if he would secure any patronage.

The claim, that hybrids were superior to Italians, came about in this same way, as here was a direct cross again. Fully realizing that this was wherein the matter of vigorous bees rested, I began, ten years ago, to purchase one or two queens each year of different breeders whom I believed had a good strain of bees for honey-gathering, this belief being founded on a good average report from their apiaries year after year. After purchasing, these queens were tested one year, together with two or three of their daughters, and, if found of value, some of such were used to partially stock the apiary with drones; and if any were superior, queens were reared from them to a limited number, never letting go of the advance I had made with my original strain, but, rather, keeping this ahead all the while by adding what of value I found in those I purchased. In these tests it more often happened than otherwise, that the queen I purchased proved so much inferior to my own that I was obliged to kill them, much as I disliked to do so. One case in particular which I recollect was where I purchased, at a very high figure, an extra selected tested queen which was so inferior as a layer that I did not use her at all. I kept this queen three years, and in none of these years could I coax her to lay in more than three Gallup frames, and the two or three queens I reared from her were little if any better, so I killed all of them. My original strain came from A. I. Root, about twelve years ago, together with a queen purchased in 1871 of Rev. H. A. King, then of Nevada, Ohio. Both of these queens lived to be over five years old, and showed such superiority that I have tried to perpetuate and improve upon it ever since. Then I added largely to the value of this strain by the queen of the "red clover" stock sent out by A. I. Root later on, which stock was of great value to cross with, although at the present time red clover does not blossom at all with us, owing to a midge in the head.

In the above I give the reader a little insight into the plan I have been working on, and I believe it to be the plan worked upon by many of those who are breeding bees for honey; at least, the bees produced by queens purchased from those mentioned above show that they are working on this or some other good plan. That the bees from imported stock are so variable, and show that no pains has been taken in breeding them, together with their lack in giving me as good yields of honey as do other queens, and those of my own, is the reason I have said, for several years back, that it does not pay us to import queens. G. M. DOOLITTLE.

Borodino, N. Y.

No doubt you are right in the matter, friend D.; but I am sorry you have not tested in your own apiary a larger number of queens received direct from Italy. The supposition has been, that nature has selected the fittest, on account of the comparatively barren climate of Italy compared with our own, and we wish to know whether this accords with the general experience of those who purchase queens to stock their apiaries. To get at all the influence of a cross of the blood, we want, also, to watch the progeny of the queen herself, and see if that progeny has as much vim for honey-gathering as succeeding generations.

A REPORT ON WINTERING, FROM MRS. AXTELL.

Something in Regard to the Best Temperature for Successful Wintering.

A BEAUTIFUL SIGHT.

IN our bee-cellar is a sight I feel tempted to look at more than a second thought would tell me was best—that is, best for the bees. It is the nice large cluster of golden beauties, clustered nearly down to the bottom-board of the hives. Some are on the bottom-board, while others have, as winter progresses, gone up higher. One feels tempted, almost, to thrust in his hand and pat the little fellows. The small colonies seem to go up higher among the combs, and more dead bees are on the bottom. The large colonies that go nearly or quite to the bottom have no dead bees, but there is half a teaspoonful or more of very fine pellets scattered very evenly over the bottom-board.

The front boards of the hives in the cellar were raised from one to two inches to give larger entrances, so the bees could better throw out their dead bees; the brood-combs are also raised about one inch higher from the bottom-board of both the colonies in cellar, 74, and those outdoors, 61, as we had so many colonies last winter when taken from the cellar that the whole bottom was filled with dead bees, and sometimes up between the combs. Our hives, you know, are clamped at the corners, not nailed.

It is a real satisfaction to thus look right into the hives and see them look clean and well; for one can tell almost as easily whether a bee is sick or well as he can tell whether a person is well or not. I have an idea, that when a bee gets sick he crawls out of the hive to die, generally, as in the summer time, does it not? If the most of the bees that are dead upon the floor were healthy bees, then it seems to me it would be well to devise some plan to prevent their getting out upon the floor. Broad alighting-boards, with strips of tin around the outer edges, might do; or perhaps a better way would be as mentioned in Mr. Barber's plan—pile the hives up in one solid body; but, what would they do with the dead bees? It seems to me it must be very annoying and unhealthy for the bees to have a lot of dead ones in their hives.

We have kept the temperature in our cellar higher than ever before—from 40 to 45, and the bees crowded down to three and four combs, and on the sides of the combs, and on top, closely covered with oat or buckwheat chaff. We are surprised at the bees being so quiet at that temperature. I am satisfied we have kept them too cool before—about 36.

Since the last cold weather, we have had a fire in one end of the cellar, with quilts hung up against the ends of the hives, to keep the light from striking them, and to throw the heat over the top, so the nearest hives may not feel much the warmest. The weakest hives were packed nearest to where the stove is. The thermometer was sometimes in the center, and sometimes in the further end of the cellar. To-day it rose to 48, and yet the bees are quiet, occasionally a bee flitting out; but we have kept the sub-earth ventilator closed, and all other ventilation cut off. The heat from the stove makes the cellar feel comfortable, and the sides of the wall are not covered with frost, but are dry, which would not be the case with no fire.

My husband will report when he has made a more thorough test of temperature in the cellar and sub-earth ventilation. MRS. L. C. AXTELL.

Roseville, Ill.

I feel sure, my good friend Mrs. A., that a temperature above 40 will be better if you can keep the bees quiet; and I am quite sure I prefer 48, if not higher, unless a lower temperature seemed to keep the bees more quiet. When we wintered in the cellar, I thought more bees got out upon the floor when the temperature got up to 50 or 55, than when it was a little above 40. Your plan of giving abundant ventilation below, is something in the line of friend Green's article, if you will remember. We shall be very glad indeed to have further reports.

FEW OR MANY COLONIES: WHICH?

RED-CLOVER QUEENS, ETC.

I WAS much interested in Mr. Doolittle's article with the above heading on page 13 of GLEANINGS; but there are some points in his reasoning with which I can not agree. If he really advocates that the apiarist shall keep but 50 colonies in one apiary, and devote his entire time to the effort to produce large yields of honey, I would *not* agree with him; but if he means that the apiarist shall have several apiaries of 50 colonies each, I would agree with him.

Taking the first view of his argument, it has a tendency to make us believe that one swarm of bees, *if only large* enough, and expertly managed, would produce all of the honey the apiarist could dispose of! But, let us take 50 swarms, his lowest number, and see if the man who makes the raising of honey his only source of income, can make a satisfactory financial success of it.

We will take it for granted, that the person understands the secret of having his bees all in the best possible shape to secure the honey when it is secreted in the flowers. As I run my bees for extracted honey, and as my locality is perhaps not so good as Mr. D.'s, I will put my average yield, year in and year out, at 200 lbs. This would give me a yearly yield of 10,000 lbs. This amount, at the rate extracted honey is now selling at wholesale, would net me $500 per year. Now, an economical family could probably live upon this amount; but it has been said, that a person capable of successfully caring for 100 swarms of bees, or, if you please, 50 swarms, is capable of earning $1000 in some other pursuit; and I think every bee-keeper making it a specialty would not be satisfied with a smaller income.

Now, Bro. D. may clear much more than that amount rom his small apiary of 50 or 60 swarms, because he has a large queen-traffic, and there is no need of his establishing another apiary; but if he depended entirely upon his *honey* for an income, the attention he gives to queen-rearing would be well employed upon another apiary, if he had four apiaries with 50 colonies each, and obtained only 100 lbs. per colony; 20,000 lbs., at 5 cts., equals $1000. He would be better off financially than if he stuck to his 50; but if he can make his apiaries yield 200 or 400 lbs. per colony, he is so much better off. Again, 200 or more colonies would require but a slight increase of honey per colony to add many dollars to his pocket.

Every bee-keeper who has bees in different apiaries knows that a locality six miles away will yield, sometimes, much more than the home yard. To take advantage of these extra yields, the apiarist *must have* more than one apiary. Another reason why the apiarist must raise larger yields than 50 swarms can produce, is the cheapness of the product. It is now at a price where it seems it will not pay to adulterate it, and the outlook for the future gives us no hopes for higher prices.

A few years ago, and at present, there has been and is a cry against the small honey-producer. He has five or ten colonies of bees; and just as soon as he gets a box of honey he trots off to some grocery and trades it off for tea or sugar, at the grocer's own price, which is usually very low, thus setting the price for the specialist, who wishes to sell in the same town. But, let us look upon the other side, and see what the large producers are doing. Here is a man who has 800 swarms of bees in several apiaries. Perhaps it costs him $1000 to run those different apiaries; but his yield is 20 tons of comb honey. He can not afford to peddle it around to Tom, Dick, and Harry, but sells his entire crop for, say, 10 cts. per lb., thus getting a profit of $3000. Now "*I rise to inquire*," Where is your man with 50 colonies, trying to make a living out of them? Between the large producer and the small one he is ground to powder. The price for his honey is set by the former in the cities; by the latter, in his own town. He has got to continue his business with something else, or go into it deeper or step down and out. Every person who is making money in the bee-business at the present time is a large producer, or else is a large queen-breeder, or a large manufacturer of supplies. I speak for the present. Bro. D. speaks in a certain sense for the future. I hope the time will come when one swarm, if large enough, will produce tons of honey; but suppose we have an extra severe winter, or some other unexpected severity, our one swarm, or, if you please, our 50, will die—we are out of the business suddenly; but if we have 400 or 800, the chances are that we shall have 100 or more left with which to commence the season. We also find that those large yields of honey of from 500 to 1000 lbs. from single colonies are events of a lifetime. A few years ago B. F. Carroll, of Texas, reported nearly 1000 lbs. from one colony; but we may scan the pages of the journals as close as we please, and we don't hear of its repetition. It is just the same with nearly all of these immense yields. Our kind friend, the editor of GLEANINGS, obtained an immense yield from his entire apiary, and astonished everybody, long before GLEANINGS was born, and he even now occasionally refers to it; but we don't hear of his repeating it. Perhaps it is because from 300 to 500 colonies are kept in one apiary, and for this cause our friend has to buy California honey by the carload. But, Bro. Root, if it is such a fine thing, please reduce your apiary to fifty colonies, and give us another rousing report.

In the foregoing I have not entered into detail in relation to the cost of running an apiary for extracted or comb honey. My experience teaches me that it costs less in help, costs less in packages, less in shipping to market; the swarming fever is largely controlled, and I can sell honey in ton lots for 5 cts., if our comb-honey producers can for 10 cts., therefore if an apiary is run either way, the profits will be about the same; and with present methods and appliances, I think the large number of colonies, although they may consume 60 lbs. of honey per year, the little laborers are worthy of their hire, and are giving, in many apiaries, better results financially than the few.

As previously stated, Bro. D. speaks of the future, when the coming time and the coming bee will have arrived to stay. Even then, when that time comes, in whatever shape, round, rectangular, triangular, or reversible, or when the bee comes that will work upon red clover, and each one of our 50 colonies produces 1000 lbs., hundreds of bee-keepers will look over into the unoccupied field in an adjoining town, and, with characteristic enterprise, plant a successful apiary there; but the glorious day has not dawned, even though some claim to rear red-clover queens.

RED-CLOVER QUEENS.

I do not wish to impute actual dishonesty to the breeders. There may be a plausible excuse for them to so name their queens; neither do I deny that they have a valuable strain of bees. You will notice a remarkable coincidence. These queen-breeders all live in localities where red clover is raised for seed. The seed is secured from the second crop: this crop might be termed out of season, and, owing to the strength of the flower going to the production of seed, the flower is much smaller, and the secretion of honey much less, and the bees work upon it to a certain extent, but, we claim, not more than any other good strains of bees. I have even seen black bees working freely upon red clover.

It is, futhermore, a remarkable fact that the yields of honey in the immediate vicinity of these *remarkable* queens is not larger than in other localities. It would be a fact beyond controversy, and convincing, if the bees could obtain honey from the first crop of red clover, for each swarm would make such astonishing yields that every bee-journal would shout over it. The papers would hatch up a story about the bee-keepers making artificial red clover, and setting the roots in sweetened water. Bro. Doolittle could sit down under his own vine and fig-tree by the side of that 50 swarms, and sing pæans over his thousands upon thousands of pounds of honey. The reader will now bear in mind that this is a remarkable age. Every new thing should be investigated; and when you spend your hard-earned dollars for an article of which you have something as good, if not better, in your own apiary, you feel like saying right out loud, "Humbugged again."

J. H. MARTIN.

Hartford, N. Y., Jan. 29, 1886.

Friend M., in your estimate of the honey received from 50 colonies, you say nothing about increase of stock, and I believe it is generally conceded that as much honey can be secured with a moderate increase of stock as by holding the original fifty down to absolutely no increase.—I think you are a little severe on red-clover queens, although I agree with you that, when the seasons are favorable, all kinds of bees, almost, work on red clover. In our locality, Italians, and oftentimes blacks also, are to be found on the red clover in June, almost as much as on white clover—sometimes more, although there are seasons when the bees work strongly on the white clover, and almost not at all on the red clover. I think I have often stated, that, in my opinion at least, most of our clover honey in Medina Co. comes from red clover. It is true, however, that when the white clover ceases to yield honey, the red clover ceases also, and occasionally we have a season when bees get honey enough in September from the seed crop of red clover to fill section boxes, although this latter does not happen, perhaps, oftener than once in five years, on an average. There are strains of Italians that seem to gather more honey in September than other strains, and we suppose, from the color and taste, that it comes from the seed crop of the red clover. The effort, however, to perpetuate a strain of bees that will gather honey from red clover at times when other strains do not, has never been very fully realized, so far as I can learn. Most of the bees from an imported queen, direct from Italy, usually gather more or less stores while the seed crop of red clover is in bloom.

I did not know that good honey was ever sold as low as 5 cts. for extracted and 10 cts. for comb. If any one has any good honey to be sold at those figures, I should be glad to take it off his hands, no matter how much there is of it; and if it is not too remote, I will pay freight besides. A pretty large crop of honey can be sold at retail so as to get 10 cts. for extracted and 15 cts. for comb honey in almost any locality, by taking a little pains; and I think it will pay almost any bee-keeper to develop his home market, *any* way.

CELLAR WINTERING.

UPWARD VENTILATION, LOWER VENTILATION, SUB-EARTH VENTILATION, ETC.

BRO. ROOT:—I'd give seventeen cents if you wintered your bees in the cellar. It may be best for you to winter on summer stands; but for many of us it seems best to winter in cellars; and if you did so, I am confident you would help settle a good many questions that would tend to make cellaring less uncertain. I should very much like to have your help on the ventilation question. Opinions conflict as to the necessity for any kind of ventilation, some seeming to consider it as *the* important factor, others thinking no ventilation whatever necessary. When we consider in what almost absolute inactivity bees may be kept, it would hardly seem necessary for them to use much air; and instances are on record, if I mistake not, where bees hermetically sealed, or apparently so, have remained in good health. Conditions vary so much that I am far from laying down as a fixed rule for others what may seem best for myself; but so far as my own bees and cellars are concerned, in spite of my theory as to their needing little or no air, observation leads strongly in the direction of their needing a change, and a pretty rapid change, of air.

UPWARD VENTILATION.

Formerly the absolute necessity of upward ventilation was strongly urged by many, and I think a great majority believed in it, although a few combated it. Of late, very little has been said about it. Three or four years ago I tried some hives without upward ventilation, and could not see that it made any difference; and for the past two years I have given no upward ventilation, mainly because it was more convenient to leave the hives covered up tight. I supposed I was somewhat heretical in my views, until surprised to find in the *Canadian Bee Journal* of Jan. 20, 1886, that a radical change of sentiment had been quietly going on in bee-keepers' minds; for in reply to a question on the subject, not one of the fifteen who replied considered upward ventilation essential. The impression prevailed, that it made little difference where the air entered the hive, just so the bees could have it. My own hives are taken into the cellar with the cloths glued on tight, just as they were on the summer stands; but I have enlarged the entrances, so that, instead of ⅜, they are ½ inch in height, and the whole width of the hive. But if there is no good air in the cellar it is impossible to have it in the hive, so that hive ventilation is not so important to consider as

CELLAR VENTILATION,

About which comparatively little has been said. I may here mention some of the things that lead me to think cellar ventilation important. Please remember that I have now in mind cellars well filled with hives, piled five high. (When I had only eight or ten hives in the cellar there was no trouble about ventilation.) When I found the bees quite uneasy in former winters, I thought it was because they were too cold, and I was in the habit of building a fire in the evening. In the morning I found the bees nice and quiet, but was puzzled to find the thermometer no higher than it had been before I made the fire, which, being a wood fire, had died out in the night. If cold had made them uneasy in the first place, why were they not now uneasy with the same degree of cold? I came to the conclusion that the fire had hastened the ventilation of the cellar, and thus quieted the bees. Still, there may have some changes taken place, such as getting at their stores while the cellar was heated, leaving them quiet afterward, without any reference to the ventilation.

Toward spring, when the weather became warm and the bees uneasy, I opened the cellar doors and windows at night, causing great uproar among the bees when first opened; but by morning all were quiet, no change having taken place in the temperature. What, besides the change of air, quieted them in this case? Again, I noticed the bees were invariably quiet after a windy time, whether cold or warm; and a still, damp time was just as sure to make them uneasy. The shop cellar is without sub-ventilation; and when the weather moderates, it is necessary to open the trap-door or window; but in zero weather no such necessity exists, although the thermometer in the cellar may stand just as high as in the warmer weather. The reason is, that, in the zero weather, the temperature is so much higher inside that the heavy, cold air outside forced its way through every crack and crevice, thus ventilating the cellar without any large opening. Now, don't understand me to say that the whole secret of wintering lies in ventilation; I don't claim to know much about wintering, any way, and am far from thinking that perfect ventilation will secure perfect wintering. I merely think ventilation important, practical observation showing it more important than theory would lead us to believe. Nor is this disproved by citing occasional instances of successful wintering with no apparent ventilation, any more than occasional instances of wintering on five pounds of stores would prove the general practice of allowing only five pounds per colony any other than hazardous. Certainly no *harm* can come from having an abundance of good pure air in the cellar at all times.

Another consideration urging in the same direction is, that most bee-cellars are under dwelling-houses, and medical authorities inform us that grave consequences occur from impure air in cellars. If only a few bees are kept in a cellar it may not be necessary to make any special provision for changing the air, as enough cracks usually exist to allow a sufficiently rapid renewal. In this case, however, especial pains should be taken, both for the health of the family and of the bees, to see that no decaying vegetables or other matter should be left in the cellar, from which poisonous emanations may be constantly taking place. It is frightful to contemplate the amount of foul and decaying matter that is cleaned out of cellars every spring, if, indeed, it is cleaned out at all. Many never think of disturbing, until spring, the decaying mass, no matter how much noxious vapor is constantly steaming forth. The cellar should be thoroughly cleaned of every thing of the sort, and *kept* clean—fruit and vegetables of all sorts frequently picked over, and all decaying specimens removed. The cellar should at all times smell sweet and clean, and a good coating of lime or whitewash once or twice a year will help. If twenty or more colonies are kept in a cellar, special provision may be needed for renewal of the air, and of this I may have a word to say in a future number.

Since writing the above, GLEANINGS for Feb. 1 has come to hand, and your remarks about using sub-ventilation for greenhouses dashes my hopes in that direction, for I intended to make a great spread in talking about using it for greenhouses, hen-houses, and perhaps even for dwellings; for if we need to heat the air for *any* purpose, it will certainly cost less to heat it from 35 or 45° than to take it lower.

I heartily congratulate Ernest's wife on getting a good husband. I don't know enough about her to congratulate him, but I suspect it is all right.

C. C. MILLER, 179—340.

Marengo, Ill., Feb. 3, 1886.

Friend Miller, with the variable winters we have here in Ohio, I can not feel that cellar wintering would be profitable to us, although I may be mistaken. I have thought several times I would winter part of them indoors and test the matter carefully; but I do so dread lugging hives out and in, and having things torn up generally, as we usually have where we carry them into cellars, that, to confess the truth, I am very reluctant to undertake it, especially while we have such excellent success wintering on summer stands, and coming out with such strong healthy colonies.—If we use no upper ventilation, it seems to me we must have some sort of protection to keep the frost from striking the substance that envelopes the brood-chamber. In old-fashioned box hives, where no upward ventilation is given, icicles sometimes form on the sides and top of the hives, as large as your arm. Now, an outer covering would entirely prevent this condensation of moisture, and freezing into icicles. In regard to bees wintering in hives hermetically sealed up, Prof. Cook did make some such experiments, but I feel quite sure there were some cracks and interstices in the hives, either through the top, sides, or bottom, that gave them plenty of air. It is with hives as you aptly mention with cellars. When we have weather below zero, the air pours with great force through cracks and crevices that at ordinary temperatures would be called air-tight. I would have the cellars ventilated, anyway, whether the bees wintered well without ventilation or not. It may be that some cellars, on account of natural circumstances, are already sufficiently ventilated, without ventilators or sub-earth pipes. This might be the case in sandy soils; but in our water-soaked clay soils, in the winter time, it seems to me ample arrangements should always be made for ventilation. The point you make in regard to saving fuel and saving food by bringing fresh air into our cellars, greenhouses, and dwellings, after it has been warmed many degrees by the earth, is certainly a very important item—yes, for the hen-houses, horse and cattle stables, and everywhere where we keep domestic animals. Zero air and ice-cold water is a great waste of animal heat, and, as a necessary sequence, a waste of grain and other food products. Friend Terry, in his forthcoming book in regard to the care of domestic animals, will give us some grand new thoughts on this subject.—Our discussions in reference to the temperature of Mother Earth, sub-earth ventilators, etc., have a value that is going far beyond the wintering of bees, alone.

THE YAZOO VALLEY, OR DELTA.

ITS HONEY RESOURCES.

ONE of the most interesting sections of Mississippi is the Yazoo Delta, not only in respect to its general agricultural capacity, but also to the bee-keeper for its honey resources. I have been acquainted with this part of the State from my youth up, my father having moved, when I was a small boy, from East Mississippi, with his slaves, and opened a plantation on the Tallahatchie River, which plantation I still own, and rent in part to the slaves, now freemen, who formerly cultivated it. I, of course, never made observation in the country with reference to its honey capacity until I became acquainted with bee culture. Until 1876 I knew nothing of bees, only as insects placed at a remote corner of the yard or garden, and to be severely let alone except occasionally, when robbed to obtain a dish of honey for the table. In that year I casually obtained a volume of "Langstroth on the Honey-Bee," and since have, when on my plantation, been carefully noting the honey resources of the "Swamp," as we commonly call it. I have known of large apiaries of black bees down there in common box hives, and have seen some beautiful white honey; but nothing is known, as a rule, of modern bee culture, the Italian bee, extractor, movable-frame hive, etc. Dr. Blanton and a few others keep bees scientifically, in this valley. My conclusion from my observations is, that its honey resources are immense; and my aim is to establish an apiary there as soon as practicable. As honey is a very general product of nature, it might be expected that a country with such exuberant forest growth, and inexhaustible and unsurpassed fertility, should yield largely the vegetable nectar which the bees refine and evaporate into honey. The climate, too, is highly favorable to large secretion of honey each year, without fail. The Swamp is pre-eminently the cotton section of Mississippi, but I have never known bees to gather honey from cotton to any extent. The cypress and willow and honey-locust and black gum are very abundant, and yield much honey. The rattan is everywhere, and is alive with bees in early spring. Attracted by the hum, I have at times stopped, spellbound, for a long while to watch the bees gather honey from this plant. The cross-vine, or swamp woodbine, is very luxuriant, and its rich festoons of white flowers hanging from tall trees furnish much forage to the bees in midsummer. But my attention has been most attracted by the tupelo gum. This is a tree with large base, but with small, tall, and tapering body above, that grows only in very rich sloughs, where the roots are under water. The flowers are white, and grow in large festoons. They send out a delicious fragrance to a long distance upon the air, and yield much beautiful white honey. I might also mention the persimmon, hackberry, and other trees and plants; but the above enumeration will give a general though very imperfect view, for doubtless there is a vast number of plants that yield honey that are not yet compassed by my knowledge.

I may add in conclusion, that there are very bright prospects in every way before this valley. The levees are in good repair, a fine railroad runs through it on the west from Memphis to Vicksburg; the Illinois Central R. R. is building a branch from Yazoo City up the Yazoo and Tallahatchie Rivers to Memphis, and another road will connect these two. Thus the whole valley will be intersected by railroads; the Father of Waters will be kept within bounds, and we who are interested say the valley will become very thickly inhabited, and will be made the garden spot of Mississippi.

Grenada, Miss. OSCAR BLEDSOE.

FLORIDA, AGAIN.

THE PROSPECTS AFTER THE LATE FREEZE.

I HAVE often used the columns of GLEANINGS as a medium through which to encourage good men to come to this State to look up the bee-keeping interest here, and, in consequence, many have come and made happy homes; others, coming with great expectations and little "sticktoativeness," have been disappointed at first glimpse, and returned north, to regret their hasty decision. Still others, after coming here and taking a fair look at the State, have decided that, all things considered, they had best remain where they are, rather than make pioneers of themselves and have to put up with all the inconveniences to be met with and endured in "growing up with a new country." I have always endeavored to convey as correct ideas of this country as possible in all my writings; and for fear that many might, through the writings and advertisements of unscrupulous land agents and speculators, have formed ideas respecting the State that would cause them to see more encouragement in my letters than I intended to convey, I have always advised a visit of inspection before disposing of valuable property elsewhere. Notwithstanding this advice it is not uncommon for me to receive letters from parties north, stating that they have sold their real estate, packed their household goods and bees into cars, and are to start for this State within a day or two. Such people seldom have their expectations fulfilled, and yet I am blamed for their blunders and lack of judgment.

The object of this article is to say to all, Do not do this. At any time it is a dangerous experiment, and at this particular time it is almost sure to bring disaster. We have just passed through the coldest spell of weather that the writer or any of his acquaintances have yet seen in Florida. Fifty-one years ago there was a similar freeze, a little later in the season, and perhaps the mercury took a little lower dip, that killed all of the mangrove and orange trees throughout the northern half of the State. This has doubtless killed a large part of the mangrove, but just how much can not be told as yet. Messrs. O. O. Poppleton and Jesse Oren, of Iowa, both well known to the readers of your journal, and myself, went out to some of the islands in the river during the last day of the cold snap, to see what the effect had been, and, to the best of our combined judgment, about four-fifths of the mangrove was destroyed. This being the case, the bee-keepers of this section can not expect a large crop of honey this season; and whether or not the next two or three years will give much better crops, will depend on whether or not the roots are killed as well as the stock. How far south of here the devastation extends, I am not able as yet to say; but as Mr. R. S. Sheldon, of New Smyrna, intends to start south this week to find a location for his bees after the early bloom is over here, we shall probably know after a while.

Our oranges are all frozen that were left on the trees; but although the mercury went down to 20° above zero, the trees appear to have come through all right in this section. The cold spell has destroyed a good deal of property, and proved to be a very serious matter with many; but it neither caused loss of life or destroyed buildings, as blizzards and earthquakes do, and is much less likely to recur than either of them would be in countries subject to them. I accept it as a part of the programme of life, and shall go on with more confidence in this country for orange-growing and bee-keeping than ever before. W. S. HART.

Hawk's Park, Fla., Jan. 18, 1886.

Friend Hart, I thank you for your caution to the people who get the Florida fever, or any other fever, and pull up stakes, take family, bees, and all, and start, before the head of the family has even gone ahead to reconnoiter the ground. Some of you may remember our friend Damkohler, who wrote with such enthusiasm—see GLEANINGS for 1883, p. 377. Well, a letter is just at hand mentioning his wife's death, and that he is alone with an infant and a family of small children, himself worn out with fatigue, and almost ready to give up, away off in the wilds of Florida.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Jan. 15.

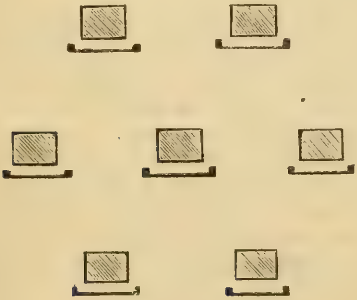
CHAPTER IX.

He which soweth sparingly shall reap also sparingly.—II. COR. 9:6.

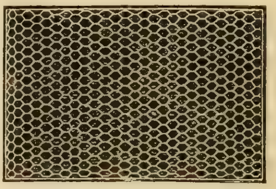
The above text does not, perhaps, cover the ground of this chapter, but it comes nearer to it than any thing else that now occurs to me. The point I wish to touch on in this chapter is this: After having once prepared our ground nicely for a crop, we want to be sure the crop is put on to it. In our best books on market gardening we are told how many plants can be put on an acre. For instance, Landreth's earliest cabbage is so small and compact that 15,000 may be grown on an acre. Now, real nice fine specimens, started in a hot-bed or greenhouse, so as to produce heads in June, ought to bring 10 cents a head. This would make $1500 for an acre of cabbages. If these figures are too large we will suppose they will bring 5 cents a head, which will be $750 per acre. Last June we got 20 cents a head for all the early cabbages we had to spare, which would be $3000 per acre, providing we had a market that would take the whole of an acre. Now, what is the trouble with these figures? Why, the trouble is this: 15,000 heads *could* be grown on an acre, providing every inch of the ground were brought up to the highest fertility, and providing, also, that the plants were set at mathematically correct distances; that is, each plant should be just so far from its neighbor, and no further, and there should be no vacancies. This last matter of vacancies is what I wish to speak of now. Farmers, gardeners, and almost every one who works in the soil—from those who get a dollar for the product of a square yard in the greenhouse, to those who get only a few dollars an acre from their crops out on their farms, all waste time and money by not having their ground thoroughly and *accurately* seeded. What I mean by "accurately" is, that just the right number of plants are put upon an acre—no vacancies, no crowding, and no getting too far apart. It seems to me there is no tool on the farm that is so far behind the times as the marker. The seed-sowers do better, but it seems to me that these can be greatly improved. With the wire-check row, and careful management, there is a pretty good prospect for a full crop; that is, for about all the ground will do; but to go over our farms as we ordinarily find them, my opinion is, that, in this matter of seeding alone, it is a common thing to lose half the crop.

TRANSPLANTING.

Now, if this matter of preparing the ground nicely—manuring it and all, and then not getting a crop on it because a plant has not been made to grow where the ground was ready for a plant, is expensive business, it is still more expensive to prepare ground for a greenhouse, and go to the expense of glass to put over it, and steam-pipes and fuel to keep it warm, and then not have every square inch occupied, not only every day, but *every hour*, with some sort of a plant. During the convention of the bee-keepers of our nation at Detroit, Dec. 9, 1885, I started out in the morning to visit the greenhouses in the suburbs; and one point I wished to determine was, whether the proprietors kept their ground all doing something. I found they didn't, by any means. At one place where lettuce was bringing $2.00 a bushel, a crop had been taken off, and the ground was lying idle, while plants that sadly needed more room were standing in a bed near by. The man in charge was standing around, smoking his pipe, saying he knew the plants ought to be in that ground, but he hadn't got around to it. Now, *I* should want to see the ground nicely fitted, and more plants growing, in the place of those taken out, within *one hour;* and under such circumstances I would take up the young plants with a good ball of dirt hanging to the roots of each, so that there should be no stoppage in the growth—in fact, take *all* the earth to a depth of one or two inches, along with the little plants when they are taken up. Then they have no check, but find themselves already growing, spread apart so the leaves that have been struggling for light and air can, any of them, have a nice little space to fill up with nice crisp foliage; and not only did these men let the ground lie idle while the December sun was pouring down through the icy sash, but when they planted them out they did it in such a slipshod way that some of the little plants had nearly a foot of room, and others, perhaps, not six inches. I would have decided just how much room I wanted for lettuce-plants to occupy, and then, in view of the expense of the space it occupied, I would have them at exact distances. Do you say, "This mathematical accuracy is all very well to talk about, but it won't pay in practice"? Just wait a bit. I suppose most of my readers are familiar with the quincunx plan of planting fruit-trees and other things where we want to get as much room as possible for each plant, and still have the ground all covered. It is simply adopting the plan the bees use in building their cells. Where an orchard is planted with the trees in squares, there is quite a space in the center of each square, comparatively unoccupied. Fruit-growers sometimes put a peach-tree in this center. A much more economical way is the plan of which I have spoken. It is, to have each plant or tree the center of six, and the six are at exact distances from each other. The cut below, taken from our A B C book, will explain this, only that was made for bee-hives and grapevine trellises. You can suppose each hive to be a cabbage-plant. The cabbage-plant sends out its leaves, usually, in pretty nearly a circle. When they get so they crowd each other, these circles will so adapt themselves as to pretty nearly cover the ground; each one being squeezed a little against its neighbor, would give exactly the form of a cell of a honey-comb.



How shall we get our plants set like this without too much expense? Well, the plan of sowing things in drills, if the plants could be made to "break joints," as it were, would accomplish it; but even if they do not break joints, it is, I think, as a general thing, rather ahead of the hill system, unless, indeed, we have a wire-check rower to place the hills so they break joints exactly, and make a corn-field look like the above figure. Then I should want seed enough put in so that each hill can have exactly the right number of stalks and no more. There is probably no method of accomplishing this latter, except thinning. In setting out plants, however, we can do it just as well as not; in fact, with the little device figured below, and which is, so far as I know, my own invention, we can do it *better* than not.



TRANSPLANTING-FRAME.

The above is made by stretching a piece of poultry-netting over a frame of half-inch iron. I would have this frame made of *iron* instead of *wood*, because iron, by its weight, stays right where it is laid, and is not easily moved around, even if you hit it with your hand while transplanting. You see, if you should give it a hitch after a part of your plants are put in, it might be difficult to get it back into its place again, and this would spoil the symmetry of your rows. In use it will pay, perhaps, to have two sizes of these frames. One of them is two feet wide, and just long enough to lay inside the side-boards of the benches in our greenhouse. The other just drops inside the boxes we pictured on page 60.

Now, then, when your seedlings, such as we told you how to grow in the chapter before this, have got so far as to show the third leaf, and begin to look somewhat crowded, take them up with the fibrous moss, or peat, I have described, adhering to the little rootlets, and plant each one in the center of one of the meshes of the frame. Our method of transplanting is to take a little wooden stick, the size of a lead-pencil, or a little larger. Instead of having the end of the stick a sharp point, however, let it be flattened so as to be perhaps a fourth of an inch wide at the point. Lay the plant in the center of one of the meshes, and with this flattened point of wood push it clear down to the first leaves, then with the same stick press the soil around it. When you finish the box, take a watering-pot with fine a rose and soak the soil so as to have it settle all about the little rootlets. If you do your work well, not one in the box should fail. The soil to be put in these boxes to start the little plants, should be much like that prepared for the seeds. An inch of fine old manure in the bottom of the box will be quite a help. When they get too much crowded, plant them out in the same way in larger boxes, or in the open ground. By this time, take every other mesh of the transplanting-frame, and, if you choose, every other row in the meshes, according to the size of the plants and their habits.

We work in this way, cabbage, cauliflower, kale, lettuce, celery, and tomatoes. You will see, we have absolute mathematical regularity, and with no waste ground. When the weather is suitable to work in the open air, use the same frame there. But I would have all my plant-beds, outdoors as well as in the greenhouse, made of very deep rich soil; and if it is soil that will bake over, put on enough peat to cover the surface—at least, to do entirely away with baking. We can not tolerate a hard crust around our plants, nor over our seeds. Your plants will be all the better and all the stronger if they are transplanted *twice* before they are put out in the field.

Some may ask. "Why this laborious transplanting?" Several things are accomplished by it. First, we get a stronger fibrous root than can be secured well otherwise. Second, we economize space. In one of the boxes I have described, you can keep about 2000 little plants until they are two or three weeks old. When transplanted by the frame, these same boxes will hold about 140 plants each. They can stand in this box until they are ready to go into the open ground, as a rule. With celery, and some other plants having a great mass of fibrous roots, we can, when the time comes to transplant for the field, turn out the contents into one fibrous sod of matted roots and soil. This sod may be handled as you would handle a door-mat. Lay it on a smooth board (such as a hive-cover, for instance), and take a long butcher-knife and slice the plants up into little squares—or, rather, little hexagons. Each one looks like a potted strawberry-plant, and you can plant it out in good soil, and have it grow without a single failure of a plant, or any check, by transplanting. The White-Plume celery that we have been selling for six months at such good prices was all raised and transplanted in this way. A good hand will transplant 500 seedlings into boxes in an hour; and where the soil is just right, he can put nearly as many in the open ground; so you see that transplanting is not such very expensive business, after all. In the greenhouse, you have your box on a table of the right height, so it is not nearly as fatiguing as working on your knees in the open air.

The third reason in favor of transplanting over sowing the seed is, that in transplanting you get the plant where it ought to be, and no failures; whereas, if you sow the seed this would be next to impossible, without a very expensive thinning-out. Last, but not least, we get our plants large and strongly rooted, in full vigor, and ready to go into the ground the very day some other crop has been marketed and sold. We also have the plant prepared to take right hold on the manure—that is, you need not purchase your manure, if you have to buy it, until the plants are ready to take right hold of it. You see, you have the use of your money longer.

FILLING IN WHERE PART OF A CROP HAS FAILED.

For a good many years I have been in the habit of planting over where the seeds did not come up. Sometimes we plant corn again where a hill has failed; at other times we put in a cabbage or tomato plant. Later in the season, white beans, etc. Now, I have come to the conclusion lately, that I want no more mixing up, if it can possibly be avoided. Suppose we have an order for green corn, when the crop is about exhausted. I tell the boys they can get some nice corn by hunting up the hills that are planted a second time; but the job of hunting is more than the corn is worth. Going over the field for here and there a few tomatoes, is about as bad; and even going over the farm to gather the white beans that have been put in waste places is a good deal the same way. The boy who is sent gets only about half of them. I tell him to go out again, and then find a lot missed. I want, if possible, the whole ground occupied with one crop, and I want that crop to ripen all at once, as far as possible. When it is all ripe, I want to be able to clean the ground and prepare it for another crop, and so on; and in no other way can this be done so well as by transplanting—that is, such plants as are usually worked in that way. Last season I transplanted corn and cucumbers, and made a success of it too. In this way I had no vacant hills, and yet my plants were all of one age. With the cucumbers we dug a good-sized hole, then divided the hill with a spade while another hand with a shovel cut under so as to take a large shovelful of dirt, plants and all. Scarcely one of the transplanted hills wilted where it was done carefully. Of course, this will pay only with crops such as market gardeners raise.

CHAPTER X.

By wisdom is a house builded.—PROV. 24:3.

Well, friends, very likely we shall need a deal of wisdom in building some sort of a structure to keep the frosts of March and April away from our little boxes of plants, even if we don't have very many of them, nor need very much of a protection. Your plants are taken up from the seed-bed where they grew, and planted two inches apart, according to our directions in the last chapter; and the next thing that comes up is, "Where shall we put the boxes?" If you have plenty of windows opening into a warm room, they can be set around the windows or in front of them; that is, a certain number of boxes can, and they will do this way tolerably well until warm days come so you can put them out. Of course, you must turn one side and then the other to the light, to make them grow straight up. If you get them very far from the window, you will find that, in their efforts to get to the light, they will not only tip over sidewise, but they will stretch their necks, as it were, and thus get long-legged, or "drawn," as gardeners call it. Well, suppose the windows do not answer for the quantity of plants you have got nicely started, what then? Why, you must put them outdoors in a hot-bed or cold frame; and in making even a simple structure like this, we want to scrape up all the knowledge we have gained in regard to heat, light, ventilation, etc. Our cold frame or hot-bed must first have a sunny place—a southern slope; that is, a piece of ground sloping slightly to the south is what we want. Next we want to protect it from the winds by tall buildings, if we can get such a place; but if not, a tall board fence, or something of that sort. High hills and overhanging rocks are, of course, better than buildings or any thing else, if you can get them. Have the tall buildings, overhanging rocks, or high fences, on the north and west, if possible. A similar protection on the east will make it still better, so you see a gully fronting south between two hills would be about the thing. Of course, you want a protection on the north to keep the north winds from coming down this gully. A building would probably be the best thing. I used to think, that *under* an overhanging rock, or under a shed, would be just the place—the shed, of course, fronting the south. The objections to a shed are, that it cuts off the light, making the plants have a tendency to turn off southward, and stretch themselves up, as I said above. From this, we see that, whatever covering we have, it must be glass so as to admit light. Even the north roof, that the sun never shines through, must be transparent, to get the best results.

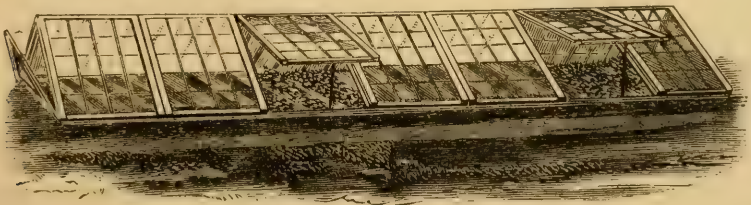
Having chosen our location, we will consider the simplest form of a plant-bed. The smallest size usually made is that of a hot-bed sash, generally 3 x 6 feet. In order to avail ourselves of the heat of Mother Earth, we will dig down, say, 18 inches into the ground. To keep the dirt from caving in upon us, put in a wooden box 3 ft. 1 inch by 6 ft. 1 inch, say, outside measure. The sides of the box may be, say, a foot high. If the ground is frozen when you commence, you will have to chop it out with a pick or an old ax. When you get some fine dirt, bank it up around your pit, but let the bank be at such an angle that it shall not prevent any of the sunshine going clear to the bottom of the pit. These directions are for the *south* side; but if you have a slope around the other sides about the same, it will be all right. After you get it dug, put on your sash and wait until the sun shines enough to thaw out the interior by going through the glass. If the sash is placed at an angle so that it faces the south, it will heat faster, but this is not very material. The large cold frames and hot-beds, at Jersey City, near the city of New York, have the sides almost level. Perhaps the south side is an inch lower than the other—may be two inches, but the slope is so little that I could hardly notice it. They used plank for their supports to the sash, and the plank were planed on top so as to be perfectly level, so the sash shuts down as nearly air-tight as possible. When a sunny day comes, so that the ground is thawed up inside, you can remove your sash and put in boxes of plants. Now, then, you are to watch them and take off the sash whenever it is not freezing weather outside. Sometimes a cold wind will harm the plants when it does not freeze. In such cases, keep on the sash, tilting it up a little to prevent the plants from getting too hot. The temperature inside is best not lower than 40°. Peter Henderson gives the rule for lettuce, cabbage-plants, radishes, etc., as 50° at night and 70° in the daytime; so when your thermometer shows 70° you want to be on hand and tilt your sash. If the sun is shining, and it is not freezing outside, take the sash off entirely. The clear rays of the sun, without any sash at all, are always better, if the plants do not get too cold. If unusually severe weather should occur, and continue for some time, you will need to put a shutter or straw mat over your sash. If that does not do, cover the joints with coarse stable manure—straw or litter of any kind. Leave this on until the weather moderates, and then gradually take it off. After your plants have become a little used to frost and cold air, after being taken out of the house, they will stand quite a freeze without injury; that is, even if the ground should be frozen over the surface, you will find the plants will come out all right. In fact, what are called cold-frame cabbage-plants are raised in the fall, and wintered over without injury, even where the thermometer goes down to fifteen or twenty degrees below zero.

As a rule, there is very little if any growth with any of these plants while the temperature is 40° or lower. Some plants will make some growth at 45°, and others will make a slow growth right along at 50°. Plants that are accustomed to grow at 50° become very hardy, and will stand severe freezes without injury. When it comes time to raise tomato-plants, peppers, and other tender vegetables, you will need what is called a hot-bed. This is simply a cold frame, just such as I have described above, with the addition of heat obtained from stable manure placed underneath the plants. Get stable manure that has begun to heat, or while it is hot. Fork it over and break it up fine, then put from one to two feet in your pit, under the boxes of plants. This will give heat enough to start seeds, even in the month of February, in our locality; but the cold frame will also start seeds without much trouble, in the month of March, say during ordinary seasons.

If you want a larger cold frame, of course all you have to do is to use more sash. In the figure below, we show you one we use with great satisfaction, composed of fourteen 3x6 sash. The sash is called 3x6, but it really measures 3 feet and 4 inches in width, from outside to outside.

Its location is on a level piece of ground, with our factory buildings on the north and east side. On the west we put up a tight board fence seven feet high. The outside of the frame is simply 2-inch joists about six inches wide, set up edgewise, and held in place by oak stakes two inches square, driven in perhaps two feet. We used about five stakes on a side. The inclosure is 11x23½ feet. Inside, the ground is made rich to a depth of perhaps 18 inches, with stable manure, peat from the swamp, and good rich soil. We found it not only laborious business to handle so many sash, but somehow or other, every time the sash were taken off and put back again, more or less glass was broken. It occurred to me that some arrangement might be made, obviating the necessity of taking off the sash; and at this date, Feb. 10, it seems as if my plans were a perfect success. The cold frame is full of beautiful cabbage, cauliflower, and lettuce plants, and not a plant has died. Shall I tell you how I manage it? You will notice the gable end is made like a door, hinged at the bottom, so it tips back. Well, when it gets too hot inside we open the doors at each end. This lets a draft of air right through; and even during very hot days the draft keeps the plants cool enough, even though the sash are all left in their places.

Of course, there must be some kind of a ridge-pole to support the sash at the top, and this is simply a strip of ⅞ board about 4 inches wide, supported by rafters made of pieces ripped from a two-inch plank. These pieces are about 2½ inches wide, set up edgewise. This makes the rafters 2 x 2½ inches, and the stout oak stakes driven into the ground prevent them from spreading. When in place, each sash laps one inch on to a rafter. Well, we found by trial that a heavy wind would blow the sash over and break the glass. To prevent this, we attach each pair of sashes to each other at the top, by a hook and staple made of galvanized iron. This allows them to be quickly moved and quickly fastened when put back in place. It

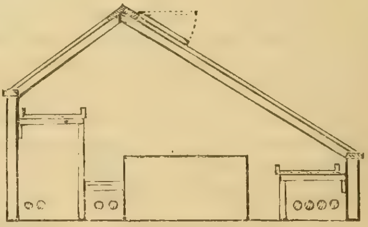


A COLD-FRAME FOR WINTERING OVER CABBAGE, CAULIFLOWER, LETTUCE, ETC.

also allows the sash to be tilted up, as shown in the engraving. We tilt them up to get out or put in plants, or give them water. When you have much sunshine, the beds will get very dry, and they must be watered, either with a sprinkler or a fountain pump; or you can pour water on, by being careful so as not to wash the plants out of place. However you do it, wait until they begin to show they are needing water, and then give the beds a good soaking. The very best way in the world is to take the sash off whenever there comes a rain. Whenever it is raining in the winter, and not freezing, the sash ought to be off. It is, however, less trouble to water the plants by hand, many times, than to take off the sash. We were annoyed last fall by the cats getting in nights, when the end-boards were left open, and scratching in the soft mellow earth. We stopped this, however, by covering the gable ends with poultry-netting, put on in such a way that the doors could be opened and closed without trouble.

Perhaps you may want to know what advantage cold-frame plants possess over plants raised in the house or in the greenhouse. As a rule, they are much stronger and hardier. As an illustration, we are today, Feb. 10, planting cold-frame cabbage and lettuce in the open ground. They have been greatly hardened, until they will stand almost zero weather without being injured in the least; whereas a plant raised in the greenhouse, without this hardening process, would be killed out with a freeze of 15 or 20 degrees. Plants may be raised in the greenhouse in February, and hardened by opening the cold frame, and exposing them gradually.

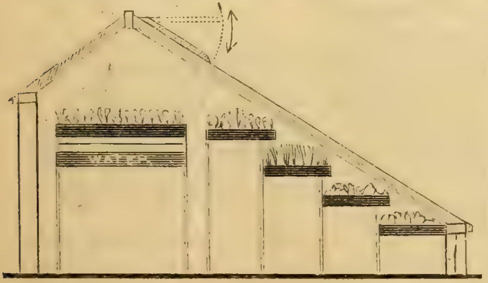
Now, it may occur to you that the cold frame just described could be very easily made into a very pretty little greenhouse. So it can, and our first greenhouse was made in that way. Just build the structure so one end comes up against a cellar window to your dwelling-house, and you have it. Cut the window down low enough so it will do for a door, then make a ditch or trench through the center of the building, 18 inches wide and about 3 feet deep. You can then walk easily under the ridge-pole, and you will have beds about the right width. If your walk is two feet wide it will be handier to get by another person, but it wastes your precious ground inside of the glass structure. Now, if you want to make the plants grow all winter you will need a little fire heat. The way we did it was by having a large barrel of water at the end of the cold frame, opposite the door. A steam-pipe went up one side of the path to the barrel of water, and down the other. When a cold night comes, heat the water in the barrel, by means of the steam-pipe, up to about the boiling-point, and it will keep your greenhouse free from frost all night. The evaporation of water from the barrel soon coats the inside of the sash with half an inch or more of frost, and this frost also closes all cracks and crevices with ice, so as to make the room air-tight during a severe freeze. You can have the surface of the ground for your beds, or you can have boxes, such as I pictured in Chapter VIII. The boxes are handier, because you can carry them with the plants right where you want to put the plants out. But, suppose your business demands a larger greenhouse than this cold-frame arrangement. Well, you can make it longer, or place another, just like it, right by its side. The latter plan has been the one advised until within a few years. Peter Henderson, however, of late uses a structure something like the figure shown below.



HENDERSON'S NEW METHOD OF BUILDING GREENHOUSES.

This building has one long side of sash, facing the south, as you will notice. This long side is about three times the width of the sash, on the north side. For instance, if you use six-ft. sash on the north side, you will want rafters about 18 feet long on the south. This makes the north wall a good deal higher than the south wall. One would naturally suppose that these walls should be made of brick or stone; but Mr. Henderson states, and I think he is right, that a wall made of cedar posts, covered with rough boards, so as to inclose an air-space, is more effective and more substantial than brick or stone. To make it still more impervious to frost, there should be a tight covering of common tarred building-paper between the two board walls. We use matched ceiling for the inside, and drop-siding for the outside; tack building-paper on to the studding before the siding is put on. Where the building-paper is spliced, a strip of wood should be nailed across the joint, so that no cold air can get through anywhere. The interior of the house shows three benches for plants, and two walks. The first, or south bench, is the lowest of all; the middle one a little higher still. You will notice, that under the lowest bench are four steam-pipes for heating purposes. Two more are seen under the walk, next to the tall bench, and two more under this bench. It seems a little strange, but it is nevertheless true, that the coldest place is to the south side, over the low bench.

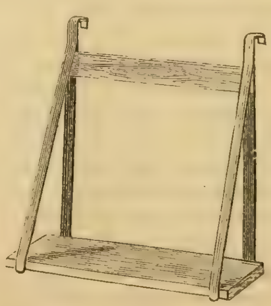
Now, it is laid down in our works on greenhouses that plants do better, the nearer you get them to the glass. To take advantage of this, Mr. Henderson, in his new style of house, raises them as he goes back. I knew this was a fact, but I didn't know until the present winter that it made such a very great difference. Almost every box in our greenhouse seems to indicate, as plainly as words could tell it, that they want to be close to the glass. One of the standard works on greenhouses says no one has yet ever been able to explain *why* this is so. Plants away from the glass keep reaching up and growing long-legged, as I have told you; whereas, when they are close up to the glass they seem satisfied; they put on a dark rich color, and grow stocky and short, the way we want them to. To test the matter thoroughly, we tried boxes in different positions, and rigged one of our greenhouses so as to be pretty much like the figure shown below.



PLAN OF A GREENHOUSE, AS PREFERRED BY THE AUTHOR OF THIS BOOK.

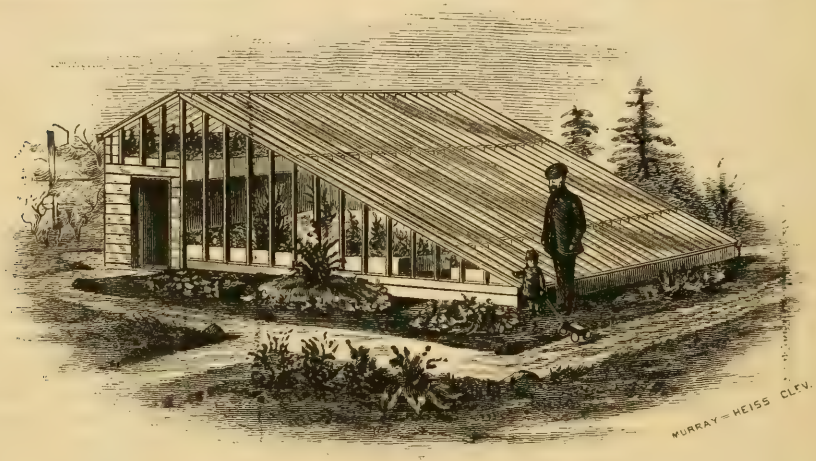
You will notice in the above, that the first bed is much like Henderson's. It is, however, to be only 2½ feet from the ground, the south edge coming close to the glass, just allowing the plants room to grow. The next bed is just two feet higher up; and if you call the thickness of a bed six inches, this upper one is just four feet from the ground or floor, obliging one to stoop over when he wishes to get at the lower bed. As he has, however, 18 inches of space between the upper bed and the lower one, he can work very conveniently with his head bent over, as it would naturally come while working in the lower bed. The third bed comes two feet higher than the second; the fourth about two feet higher than this, which would bring this last, and also the center bed, with its upper surface, 7½ feet from the ground.

The supports for these beds may be straight-grained pine or ash, or, better still, gas-piping, for we want just as little shade as possible. Every thing should be painted white —rafters, supports, sides of the beds—in order to make the room as light as possible. Under the large bed in the center we have a water-tank. This tank is to equalize the temperature of the building, and to furnish water for watering plants. A hose attached will sprinkle the three lower beds easily and expeditiously. Whether the building is warmed by steam, hot water, or a flue, I would arrange it so as to heat this body of water on very cold nights. The water may be procured from the roof partly; and, if steam is used, from the condensation of the steam. The roof is all permanent, except the hinged sash shown, for giving ventilation. The ventilating sashes should be placed about three feet apart—they may be 3 x 4 feet in size; but be sure to have them lap *over* the other sash, not to go down between them. When they get covered with ice, you will know why. In regard to the width of the beds, we have decided on about 3½ feet. The operator can work handily this distance, if he is just the right height from the surface of the bed. To get this height, and have it always just the same, and still not be cumbered with elevated walks, we use an invention of my own, figured below.



MOVABLE STEP TO HANG ON THE SIDE OF THE ELEVATED BEDS.

An explanation is hardly needed. The board is 3 ft. long, 6 in. wide, and ⅞ thick; the irons can be made by any blacksmith. For a man 5 ft. 8 in. high, the distance from the hooks to the surface of the step should be about 2½ ft. You can get the most convenient height for reaching and working across a bed 3½ feet wide by blocking up a plank until you get it just where you want it. The center bed is 7 feet wide, so you can stand on either side. I would have 18 inches between the center bed and the wall, and between the two upper beds. The building may be of any length you choose. I would suggest not less than 25 feet. Below is the cut of our own greenhouse made last fall.


MURRAY = HEISS CLEV.

OUR GREENHOUSE, FOR RAISING LETTUCE, RADISHES, CELERY-PLANTS, CABBAGE-PLANTS, ETC.

This building was put up last fall, and the work was all done by our own hands, and it has answered the purpose perfectly, in every respect. The cost was perhaps from $150 to $200, counting every thing. It will be noticed that the arrangement of the beds is not exactly as I have recommended; but by careful experiment on a smaller house attached to the above, I am satisfied the plan laid down here is the correct one. Our heating is done by steam pipes, a three-inch pipe going clear around the outside of the room, and terminating in a large cistern directly under the large central bed. With the water in the cistern heated up nearly to the boiling-point, the temperature of the room keeps perfectly, even when the temperature is zero outside. The dimensions of the greenhouse pictured above are about 20 x 24 ft.

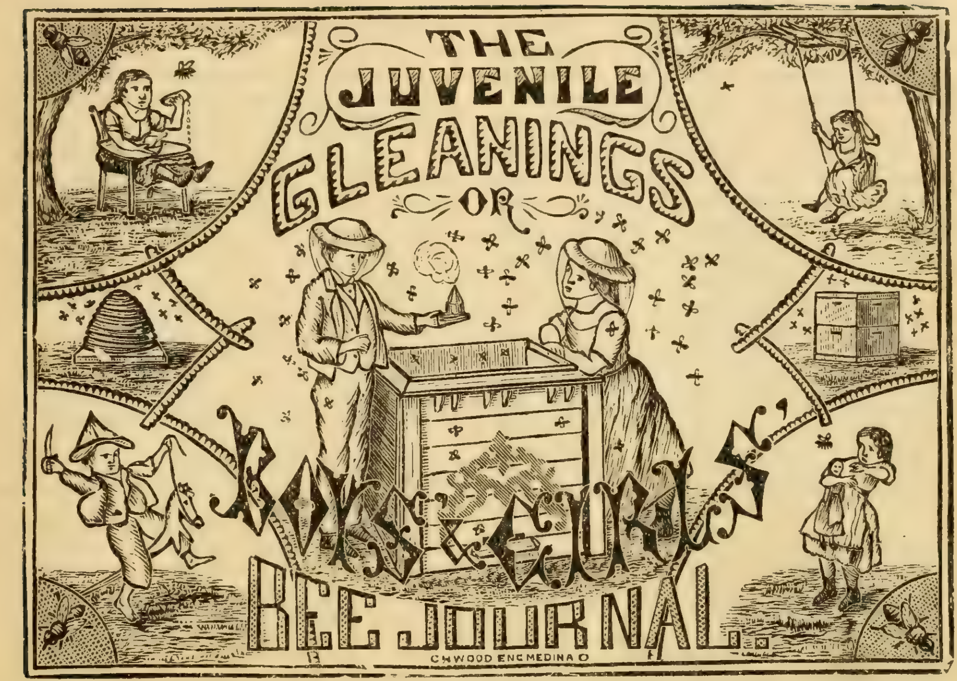
In the above directions I have considered glass only as a covering for the cold frames, hot-beds, etc. In Peter Henderson's latest catalogue he mentions the use of oiled muslin in place of glass, and states that it is superior to glass in respect to injuring plants by *too much* heat. As the oiled muslin is only partially transparent, of course it won't heat up as glass does. Perhaps we might mention here that the heat of the sun, when confined in a close box, covered with a sheet of glass, will give heat sufficient to melt beeswax, and scorch wood. In an experiment made this 11th day of February, with what bee-keepers call a solar wax-extractor, the thermometer indicated a heat of 180°. Well, the muslin, being somewhat porous, allows a slow circulation of air, besides obstructing a great part of the heat, and yet it is a tolerably good security against frost.

We take the following from Henderson's price list, although we have not had an opportunity to verify the statement by our own experience:

> This we have found an excellent substitute for glass, in protecting and forwarding all kinds of seeds and plants for which glass sashes are used in early spring. It is safer, in fact, than glass, as it protects at night, while the temperature is not raised too high by day, as is the case with glass sashes, unless great care is given in ventilating. And being light and portable, it can be sent into sections where it would be difficult to get sashes. Moreover, it costs only one-eighth the price of glazed sash; and as it is waterproof, with care will last for ten years.

The fabric above is nothing more than common cheese-cloth, coated with boiled linseed oil. It is, however, so easily torn or injured that we are going to test by its side some stout cotton cloth, oiled in the same way. A large sheet of this material could be easily handled by two men, and might save many times its cost during a single night, when late frost occurs unexpectedly. For such a purpose it might be supported by some stakes stuck down among the plants, or by some long light strips of pine, with iron stakes attached, so they can be easily and quickly pushed into the ground.

To be continued March 15.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

White Lumber for Making Sections.

RAISING BASSWOODS, AND SOME OTHER MATTERS PERTAINING THERETO.

Cast thy bread upon the waters: for thou shalt find it after many days.—ECC. 11:1.

THE question is being constantly agitated at our conventions and through our journals, in regard to cutting down our basswood-trees that furnish the honey to make nice white sections to contain said honey, and present it to consumers in a marketable shape. The question has been asked, "What shall we do to stop it?" *My* answer is, "Raise more basswoods to take the place of those being cut off." It looks at present as if there were no other lumber in the world equal to basswood for this purpose; and if such is the case, why not start basswood-forests at once? These trees, while getting to be of a size suitable for honey-boxes, will furnish millions of pounds of honey, so that we have some bearing a crop while others are making their growth for timber; and, it is my honest conviction, that they will pay their way right along. We want men and boys with brains enough and energy enough (which is sometimes more needed than brains), to go to work and gather the basswood seeds, or put out the cuttings, whichever may be best, and start the trees growing by the millions. They can get their money back as they go along, by selling the little trees to bee-keepers, and others who want them. If little basswood-trees were now in the market, say two or three inches high, or of such size that they could be sent cheaply by mail, and offered at a price as low as other forest-trees are offered, millions of them could be sold, and at a good profit too. Then we want a little treatise on basswood-growing, by some one who has actually done it. We want to know exactly the conditions they require to make the wonderful growths that we often see them make in their native forests. We want to know just how to make them boom. If it is necessary to bring in father Cole's agriculture, it will pay us to go to the expense of that. And, by the way, I am going to have some little basswood-trees put right over my reservoirs. I want to see the little bundles of fibrous roots just revel amid those piles of stone, covered with water the year round. We want big, strong, thrifty plants to start with—something like the best plants we get of market gardeners. In my own basswood-orchard there are now many trees that bear pretty fair crops of honey, and they would make quite a nice lot of beautiful sections, if they were to be cut down. One big mistake I made was in putting the trees too far apart. The largest trees in the whole plantation are where I set a lot of trees left after we got through, and these large trees are standing now not more than a yard apart. If put in rows twelve feet apart, and six feet apart in the row, they could stand there until the larger ones would make quite a lot of beautiful white sections. It seems pretty hard, I know, to talk about cutting down a strong thrifty tree while in full bearing; but, dear friends, can't we raise enough of them so they can be spared as well as not? The loss of this source of honey is more to be feared by the bee-keepers of America than the craze about artificial honey-comb, or, in fact, any other craze that may come up. Farmers *will* cut down basswoods, where a good price is offered for the lumber, in spite of any thing we can do.

Now, then, let us gird up our loins and commence raising trees. The little trees we pick out of the forests are not first class. They need planting out in good rich nursery ground for a year or two before they are fit to sell; and my impression is, we could get nicer trees, quicker and cheaper, by raising them from the seed in the first place. Has anybody any basswood seed that will grow or can it be had? Has anybody any little trees raised from the seed, that they will send at reasonable prices? Those pulled up in the woods are almost always twisted and starved-looking. We want some nice ones to start with. Rouse up, ye juveniles, and help your Uncle Amos in his plan of providing basswood honey for future generations. Why, when I think of it I almost feel as if God had a promise laid away somewhere, that we haven't found yet, that those who labor for new generations, to rise up long after them, should somehow be permitted either to be present or look on and see the fruit of their labor. I do not know what will be going on in 1900; but somehow I feel as if God were going to give me a glimpse of it, and allow me to love the bee-friends and their children's children then as I do now.

Now, then, boys, hurrah for the young basswoods! not only during the year 1900, but during this bright new year of 1886. How much can we do toward it? If we can not get seeds, let us get nice little trees from the woods. Give them poultry manure, give them ashes, give them bone dust or phosphate, or whatever they tell us they like, after we have offered it to them. I have seen them take bone dust and ashes already. When you see their beautiful green leaves unfolding and spreading out, of prodigious size, even though they are not yet a foot high, see if you do not say with me they are one of the prettiest plants that God ever put on this green earth; and they are the plants that are going to furnish the beautiful white delicate aromatic comb honey that no man ever counterfeited successfully yet, nor ever will, while this green earth shall last.

Ernest just now reminds me that I ought to have made the above to occupy the space assigned to Myself and My Neighbors, and I think it will have to do, even though it was not intended for it. You who go into this little basswood-tree business are to be my neighbors; and I confess I should like to call the little trees my neighbors as well. How can we have pleasanter "neighbors" than a row of beautiful basswood shade-trees in front of our homes, or, if you choose, clear around our farms, or wherever there is a roadside? Wait until about the fourth of July, when the trees are in full bloom, and roaring with bees, and then tell me if even one such a tree is not a neighbor worth having.

THE BEE'S STORY.

SOMETHING FOR THE "WEE" FOLKS.

LITTLE Millard, who attends the Bloomer school in a western city, was walking slowly home from school one beautiful summer evening. This little boy liked nice flowers, and knowing his mother would tell something about any flower he might bring her, he always watched for a flower. Right by his path lay a beautiful red rose.

"Oh, how pretty!" said Millard; "mamma will like that, I know she will."

When he stooped to pick it up, he heard a buzz; and, looking up, saw a bee very near his head.

"Nasty thing! I'll kill it; it shall not spoil my pretty rose," said he.

He began to throw stones at the innocent bee. Why did the bee not sting Millard? Did it not find the flower first? Of course, its right came first, but it is going to talk to Millard.

"If you will sit down, Millard, and take the rose in your hand, I will alight on it and tell you about my home," said the bee.

"Your home!" said Millard; "you have no home."

"Yes, I have," said the bee.

Timidly our Millard sat down, and the little brown coated worker took his seat on the rose.

"My story," said the bee, "must be short, for the flowers have more honey than we can gather to-day."

"What do you want honey for? Where do you put it?" began Millard, as fast as he could talk.

"Well, I will tell you all about my home. What I want honey for, and where we put it," said the bee. "As you go to school to-morrow," it went on to say, "look in Dr. Lutes' yard. You will see several little houses—boxes you will call them. I wish you could see inside. The one next the corner is my home. Our house is two stories high. In the first story, or down stairs, there are eight long narrow rooms. Here is where the baby-bees stay, each having a little cradle to himself. When a baby-bee is five or six days old, the nurse-bee seals up the top of his cradle. Here he sleeps until he is big enough to come out and work in the house. Our mother stays here too. Her name is Queen Bess. She always has the nicest things we bring home. I always take nice things to her."

"That's like me," said Millard; "I am going to give my mamma this rose."

"You are a good boy, then. You wanted to know about what I did with honey. We have many, many nice boxes, or cells; into these we put the honey. You know we must work hard, for flowers do not bloom all the time. It is almost sundown, so I must hurry. We must kill a lot of lazy drones to-night. They eat much, but are so very lazy they never work at all. It is not worth while for them to live."

"Oh!" said Millard, "I do want to see your home; but the other bees will sting me—I know they will."

"No," said the bee, "not if you do not harm them."

"The drones will," said Millard.

"Oh! my dear boy, a drone can not sting. He makes plenty of noise, but, like bragging people, that is all it amounts to. We are both staying here too long, Millard, I must go. We will talk some other day." Away flew the bee, leaving Millard all alone with his red rose.

"I am going right home and tell my mamma," Millard said, and away he ran.

Estell, Hayes Co., Neb. LUCILLE L.

SOME INTERESTING OBSERVATIONS.

Actual Experience of a Juvenile.

LOSS OF HONEY BY DISTURBING IRRITABLE COLONIES, ETC.

THE bees are wintering pretty well so far. They had their last flight Jan. 3d. Since then it has been very cloudy and cold. Our bees are mostly hybrids, but there is one swarm composed of pure Italians, and many pure Italian bees are among the hybrid colonies. In 1884 all of our bees were very gentle, seldom stinging any one. This year most of our bees were pretty gentle, but one or two swarms were somewhat cross. In the spring one weak colony was destroyed by robbing, and another was saved only by being removed a couple of miles. This (although hybrid bees) proved to be a very gentle colony. During the autumn and winter, while looking into the hive while feeding it, it received many disturbances, but I could never see that they had any tendency to wastefully consume their stores. To-day, on looking into them, the hive-door came open with a loud snap, but I could not see that the bees were much excited, nor did I see them dive into the cells, as bees that are liable to consume honey, when jarred, get into the habit of doing. The crossest swarm that we have is the only swarm that I ever saw fill themselves with honey when jarred. I find that bees are very easily disturbed in winter. I once disturbed a swarm by simply tramping on the frozen ground near the hive.

QUEEN-CELLS.

Last June a box-hive colony that had filled the hive with bees, brood, and honey, started queen-cells.. One of the cells was rapidly built up, and was nearly ready to seal, when, on looking into the hive one evening, I saw that the cell had been well-nigh torn to pieces, and through the openings I saw the queen-larva. The next morning the cell had been mended, but it was only half as large as before. It was then abandoned.

This was several days before the first swarm came out. Now, what caused the bees (for it must have been the bees, and not a young queen) to tear down the cell? Last summer we had an after-swarm come out that returned to the hive. While going back they were very cross. The next day they came out to stay.

In the autumn of 1884 the bees gathered a great deal of honey-dew from the maples; and as a great many of the bees around died during the winter the honey-dew probably had something to do with it. Last fall I did not see a single bee gathering honey-dew.

BEES FLYING HOME BEFORE A RAIN.

I often notice the queer way bees have of hurrying home from an approaching rain. They pour in by thousands, and in a few minutes all from the fields are safely in the hive. While coming in they have an excited, hurried manner, and make a deep scared-like sound. They do this when a cool damp wind is blowing, and the clouds threaten rain. But if a rain slowly and silently approaches, they will work away, even if it is raining.

DRONES OUT OF SEASON.

Last fall, during buckwheat bloom, one of our hives became so crowded with bees and brood that they started a queen-cell, and we were afraid that they would swarm. About a month after the bees had killed their drones, some drones again appeared in three swarms. In one they were immediately killed, and in the second remained but a short time. The third colony that had them was the one just mentioned, that started the queen-cell. In this colony they were soon killed, the drone-brood torn out, the cell deserted, and swarming was abandoned, although buckwheat continued blooming. I at first thought it strange that bees would allow drones to remain after the honey-flow, and in the fall; but they were not queenless, and I could not see that any thing was wrong.

Three or four years ago some men living near us saw bees and comb on the side of a tree. Thinking there might be honey inside, they cut it down; but, lo! there was only a bunch of bees and comb on the side of the tree. A large hollow was below them, filled with ants. Could the bees have chosen the hollow, and the ants caused them to leave it? Or perhaps they settled on the body and went to work as bees sometimes do on fences, etc.

CHARLIE L. GREENFIELD.

Somerville, Butler Co., O., Jan. 27, 1886.

Friend Charlie, I believe you are right in thinking that it makes a difference as to what the temper of the colony is, in regard to the loss of honey from disturbance, and therefore it is, without doubt, more profitable to keep good-tempered bees than vicious stinging hybrids. I have seen queen-cells torn open as if a rival queen had hatched out and afterward patched up by the bees, and a good queen to issue from them. I suppose the reason was, there must have been a difference of opinion as to what course was best in the hive—that is, if bees do have opinions, and it looks as if they do.—It has always been one of the most interesting sights to me to see bees come home at the approach of a thunder-cloud, and you may perhaps remember that I have several times written about it. Their instinct is sometimes, however, considerably at fault. You will notice they may be frightened by a cloud that does not come near us at all; and, again, they may none of them, apparently, notice a coming shower, and in consequence get pretty well drenched before they make the "home stretch."

BRANDING CATTLE IN CALIFORNIA.

A TALK TO THE JUVENILES, BY AUNT KATIE.

DEAR JUVENILES:—Did you ever hear of a "*rodeo*"? That is the Spanish name for a gathering-up of cattle. Once a year, owners of cattle have them all gathered together in large correls, and those which are not branded (marked with their owner's initial or mark), are so branded. You will wonder how they can be told apart, as the cattle are allowed to all run together pretty much. You see, when a calf has been allowed to run with its mamma ever since it was born, of course it will stick close to its mother's side; and as the mother has a brand, of course the calf is branded the same. Once in a while an animal will escape being branded until it is too old to tell whose it is, and any one then has a right to claim it, and for just that purpose there generally is a lot of sight-seers.

One day, when we had been in California about one year we heard that there would be a *rodeo* here at Los Alamos, and we came down to see it. We came down the Santa Ynez Cañon. The hills around us seemed to be alive with cattle and horsemen. It made me hold my breath to see how those riders would come rushing down the hillsides, often on the full run. Sometimes a horse would stumble into a gopher-hole, and over would go horse and rider, sometimes badly hurt, but more often only scratched by the rough brush. Up they would get and off they would go, may be to perform the same feat several times, before the cattle were all gathered in.

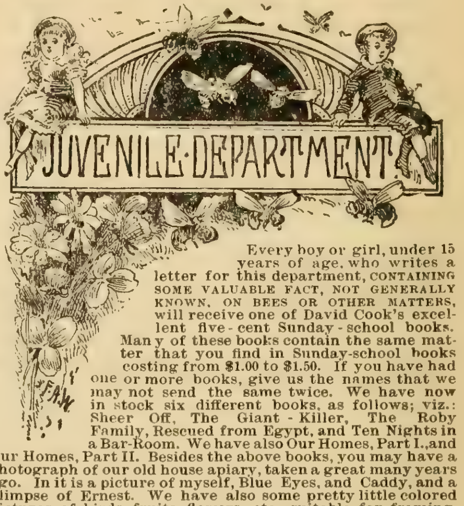
At that time many of the cattle were Mexican stock—long, lean-looking animals with tremendous horns; and if they found a person on foot they would kill him if possible; and even on horseback a person was not always safe. Many a horse has been killed, and the rider saved only by climbing a tree, of which there fortunately was plenty, or by some other strategy.

Well, they got all the cattle they could find on the ranches of the three men who had called the *rodeo*. There was a correl on the Laguna ranch, near a large laguna that the stockmen liked, on account of its nearness to water, and the cattle were within that correl. Such bawling and mooing! it was deafening. But the Spaniards there assembled seemed to enjoy it. Two or three had built a large fire, to heat the branding-irons in, and others were riding around, swinging their lassos, ready for the fray. Not liking to stay to see them work, I went on to a friend's house, while my husband stayed to see them, so I will give you his account of the way they did it.

As soon as the irons were hot, two Spaniards went into the correl on horseback, and one caught an animal by the horns with the lasso, while the other lassoed it by the hind feet. It is surprising how quick they can do it; and then each pulling in opposite directions, the animal would fall, and the owner's man would rush up with the hot iron and press it upon the fleshy part of the hip until it smoked. It seems cruel, but it is not worse than many a child gets burned. Then the lasso ropes are loosened, and the animal springs up and disappears in the band. Sometimes, if the victim was a steer, he would charge upon the horsemen. Then how the outsiders would shout and laugh! As it will not do to leave so many cattle together long, they have to work fast, so that changes are made frequently; and if any one is not expert, his time for brave show is short. After all are done, then a fine fat animal is slaughtered, and they gather around the fire with the meat cut into long strips with the grain, and roast it over the glowing coals on long sticks. Then they feast and tell stories, and generally make a night of it, as many have come miles to see the *rodeo*.

The glorious weather and dry ground make camping-out a delight. The next year after that *rodeo* was one of California's dry years, and the most of those cattle either starved to death or were slaughtered for their pelts, and these ranches were rented to American farmers, so that, for this part of California, the *rodeo* is a thing of the past.

Los Alamos, Cal. AUNT KATIE HILTON.

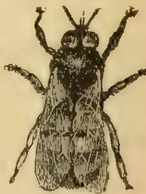


JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

LET me introduce you to our good friend Mr. Drone. He has had his picture taken, and, like all big bee-men, he must have it engraved. Don't you think it is a natural likeness of our old lazy friend? He is more clumsy and big-headed than the rest of his family, and, like barking dogs that never bite, he will make more buzzing than half a dozen bees, but never stings. His wings are large, and, for that reason, he can easily be picked off the combs. If you are to learn to cage bees, there is nothing better to practice on. As he can not hurt you, you need not feel at all alarmed; and if, by an awkward movement, you should maim him, it will not be a bee or a queen. After practicing upon him awhile you can then try a bee; when you learn the knack of putting bees into a cage successfully, without being nervous, you can try a queen. I tell you, little folks, it is a real art to pick up hundreds of bees and queens, day after day, and not maim one. If your father is a queen-breeder, see how useful you can make yourself to him. Now a few words about bees that have lost their stings.



Reports are coming in quite briskly from the juveniles, all showing invariably, so far, that bees, after the loss of the sting, die very soon; but, as has been said, all the experiments up to this time point to confinement of the injured bee. Some of the older folks have said that a bee, shut up alone on Good candy, would die any way, whether it had received any bodily injury or not. I suppose they mean that the little bee gets so lonesome and homesick that he would just die of grief. Now, hereafter, when a bee loses its sting, do not cage him alone, but cage him on Good candy, with other bees that are perfectly sound, so far as you know.

I have another problem, which is this: Cage a single bee, one that has not lost its sting, and see how long it will live. If he dies within 6 or 24 hours, or possibly at two days from time of caging, we shall then conclude that the loss of the sting in the experiments so far given did not necessarily kill the injured bees. If, on the contrary, a single bee will live four or five days, or even a week, caged alone, we shall infer that there has been something faulty in your work. My experiments so far lead me rather to the latter opinion. Those of you who are situated in the Northern States will have to wait till warmer weather; for, if a bee becomes chilled once or twice, he will not live long; but the little friends in the South can report for the next JUVENILE GLEANINGS.

A NEW FLY-TRAP.

I must not forget to mention our new improved fly-trap, and it is not patented either. What do you suppose it is? Why, it is Huber's chicken. There was only one that hatched in January, from the old hen that we promised to tell you about. As there was only one from the whole sitting, we took the old hen away and gave her another lot of eggs. No, sir! the old biddy absolutely refused to sit any more, so we put her back in the poultry-yard. The little chick is alone by himself in the greenhouse. In the daytime you just ought to see how he will hunt and eat those little green flies that are such a nuisance. His eyes have become wonderfully acute, and he will pick out a bug where you would almost say there wasn't any at all. Yes, he will travel up and down those beds, and, if you could see him, you would pronounce him a veritable living fly-trap and "bug-hunter." Huber has just gone down to see him, for the chicken likes company; and if left alone he will chirp as if calling the old hen.

ERNEST.

CAN WE TAKE CARE OF THE BEES WITHOUT PAPA?

Papa had 11 colonies of bees last spring. This fall we had 15 colonies in chaff hives, and mamma has sold two colonies. The snowstorm broke a peach limb and it came down on three hives of bees. My papa died Sept. 3, 1885. He was 37 years old. Do you think mamma, Harry, and I can attend to the bees? Papa took GLEANINGS. We like to read it.

LEE HOFFMAN, age 9.

Williamsport, Pa., Dec. 7, 1885.

We are sorry to hear of your misfortune, friend Lee. Yes, I feel pretty sure you can take care of the bees with the help of mamma. Our mammas can do wonderful things when they are obliged to, especially when they have several pairs of eager and willing little hands to help them.

ERNEST.

STARTING IN THE BEE-BUSINESS.

I will tell how I became a bee-keeper on my own account. I was riding through the pasture on horseback in September, when I found a swarm of bees on a crabapple-tree. I came home, and, pa not being at home, ma and cousin Willie went with me, and we shook them down into a Langstroth hive successfully, queen and all. When we got home we gave them one frame of brood and two frames of honey, and some empty comb for them to fill with sugar syrup. In a week or two a neighbor told pa she had a swarm of bees in an old house, and that if he would take off the weather-boarding, so she could get the honey, he might have the bees. He did so, and gave them to me. We put them in with those found in the pasture, after smoking them. The queen, ma put in a nucleus box with seventeen bees to experiment with, and she found that

MOTH WILL DESTROY GROWN BEES

as well as larvæ. She put them on top of the bookcase in the sitting-room. The air was warm and moist; and when she examined them in a few weeks, only the queen and five bees were alive. The bodies of the other bees could not be found. She cleaned up the combs, taking out every moth she could find, and tried again to see if the queen would not lay. She left them this time six weeks, then found all dead but some moths, fat and hearty.

We all study GLEANINGS and cousin Willie's A B C book, and like both very much. Our bees are packed in chaff, as you direct. I have one more heavy swarm that was a present to me in the fall. I hope I shall succeed, and be as industrious as the bee.

A JUVENILE.

Memphis, Mo., Jan. 14, 1886.

"TEN NIGHTS IN A BAR-ROOM," AND HOW TO DO GOOD.

I think my Ten Nights in a Bar-Room is very nice. I let several read it. Uncle Henry has sold nearly all of his honey. The weather has been so bad that I can not go to school. My uncle who was staying in Kansas has come back. He said he saw a town of prairie-dogs, wild-horse ponies, and antelopes.

VIRGIL PATTERSON, age 9.

Humboldt, Neb., Jan. 24, 1886.

Thank you, friend Virgil, for making so good use of the book we sent you. There is certainly a great need of more good temperance books in our homes, and Ten Nights in a Bar-Room gives a very vivid as well as true picture of the downward career of the drinking man. If your book has become too tattered to lend any more, let us know, and we will with pleasure send you another. Such acts of kindness may save some one from a terrible fate.

ERNEST.

WHAT DOES A BEE-STING LOOK LIKE?

My bee stung a piece of cloth, and I put it in a cage. It lived 45 hours and 18 minutes. I kept the sting, and it twitched for 12 minutes after it left the bee. I examined it under the microscope, and it made me think of a teapot with two spouts. From the looks of the bees we think their age has something to do with the time they live after they sting any thing.

GERTRUDE A. ORVIS, age 12.

Whitby, Ont., Jan. 11, 1886.

The two projections resembling spouts from a tea-pot were doubtless the lancets of a bee-sting which had been torn asunder. The sting proper is made of three little spears, nicely united together—one large spear and two small ones, or lancets. One sting that I once took from a bee kept wiggling for 20 minutes after. This illustrates the importance of removing the sting as soon as possible, as it will of itself work so deep in the flesh as not to be removed.

ERNEST.

ANOTHER BEE THAT LOST ITS STING.

Seeing that you had proposed to the juveniles the plan of removing the sting from a bee, to see how long it would live without a sting, I was pleased with the idea, so I tried it when pa was putting up bees to ship. One alighted on the smoker, and left its sting. I put it in a cage and gave it honey, and it lived only six hours and fifteen minutes.

Concord, Ky. **CLYDIE PURCELL**, age 13.

TURNING THE ENTRANCES OF HIVES TO THE NORTH TO PREVENT FLYING.

I play the violin. Do you love music? Pa had 17 stands of bees last spring, and lost one of them. He winters them in chaff hives on summer stands. He turns their entrances to the north, so they will not fly out so much when the sun shines, and the wind is chilly. They increased to 35 stands last summer, and made 466 lbs. of comb and 470 of extracted honey. Pa uses metal corners; he thinks they will pay for themselves in a short time. He takes GLEANINGS, and I like to read the juvenile letters. I don't work much at the bees, but pa keeps fancy poultry, and I help to take care of them. **WILLMER HORNING.**

Malvern, Ill., Jan. 10, 1886.

FLORIDA, AND THE EFFECT OF THE LATE FREEZE THERE.

I am going to tell you about the freeze we had down here. We had a very hard freeze. It killed all the oranges on the coast. There has not been such a freeze for fifty years. It killed the mangroves all down. You can go in the islands and see the big old trees all dead; they were killed by the great frost fifty years ago. I don't think that the bees will do much next summer, for the mangroves will not bloom this winter. The palmetto will be the only thing that they will have to get honey from. I don't think that any bees were killed by the cold. Our bees are all right now. We have no orange-grove, but I suppose we are just as well off, because the cold would have killed it. The oranges are all frozen, and good for nothing.

EVA S. GLAWSON.

Hawk's Park, Fla., Jan. 23, 1886.

DOES A NOISE INDUCE BEES TO CLUSTER?

I am going to tell you about our bees. This was a very poor season for honey, but still pa managed to get 700 lbs. of honey from 40 colonies, which increased to 50 by careful tending to keep down swarming, which our neighbor bee-keepers neglected, and they did not get any honey at all. Pa said he would like to see one of your Johnston pumps, and he would like to buy one if they would suit him. We take GLEANINGS, and all of us read it, and like it very much. I like to read the letters very much, and my sisters too. My little sister Lillie has to watch the bees in swarming time, and when they swarm she rattles a tin pan till pa comes to take them. Is it not funny how bees will settle at the rattling? They seem to like music.

CLARA LURKER.

Cold Spring, Ky., Dec. 21, 1885.

It *is* funny, Clara, especially if it is true, that noise induces bees to cluster. You will notice that the A B C book suggests that the noise drowns the shrill note uttered by the advance guard, therefore they have to stop to get reorganized again.

BEES BUILDING COMB ON A BUSH WHERE THEY HAD CLUSTERED.

There was a bee-tree cut not very far from our house, and the bees settled on a bush and built some comb, and the queen had laid some eggs in it when papa went and got the bees. Papa takes GLEANINGS and I read lots of pieces in it.

Ashland, Mo. **ROBERT MARTIN, JR.**

What queer freaks bees do have! I suppose the swarm you speak of got demoralized when their nice little home came down with a great crash, and they were ready then to take up with almost any home, even though it be a paltry bush. We have heard of circumstances like this before, but they are not very common. A while ago, you remember, a juvenile told us of a swarm that clustered under an old bench. It stayed there all winter, and didn't die either. We like to have the little folks report any thing of this kind that is a little unusual in regard to bees. Perhaps we shall find that many things are not so uncommon after all.

ERNEST.

RAISING CARP, AND RESULTS.

My pa has a carp-pond. He made it last spring. He sent to Mr. Kaler for a pair of two-year-old carp. He paid $5.00 for them, and $3.50 express, and sent for 100 little ones about 4 inches long, besides. He paid $5.00 for them and $3.65 express. Fifty-seven of them were alive. He drained his pond this fall. The two big ones weighed about 3 lbs. each. The 57 were about 12 inches long. There were 1100 little ones about 4 inches long, and he sold six of them that were 12 inches long for $15.00; sold 43 of the little ones for $7.00, and the rest he put back in the pond. The carp-book said the carp bury themselves in the mud in the winter. That is a mistake. My pa went to the carp-pond to-day and cut a hole in the ice in the middle of the pond, and he took the piece of ice out. It was 7 inches thick, and he saw the carp swim around by the dozens. It was 10 degrees below zero this morning.

EMMA JENSEN, age 11.

Valparaiso, Neb., Dec. 16, 1885.

Why, Emma, your facts are very important, I should say. I guess Mr. Peirce, who wrote the carp-book, will have to tell how it comes that the carp were swimming around when it was 10 degrees below zero. May be the cutting of the ice disturbed them, and will result in their death. I have heard of goldfish being killed by cutting the ice on the pond.

TEARING DOWN CELLS; HOW SOON DO YOUNG QUEENS COMMENCE IT?

Let me ask you a few questions about bees. Do you think that bees will do good where I live? I live where I can see the beach every day. How long is it after the first queen hatches, that she tears down the other cells? **SARAH SOPER.**

Ferndale, Humbolt Co., Cal.

By referring to the map I see you are situated in the northern part of California. The great honey region, however, is more in the southern part of the State; but I should think your locality would be fully as good as Ohio and other States where good yields are obtained.—A young hatched queen will begin to tear down cells very soon if not immediately after she emerges from her own cell. This would depend some on how vigorous she was at the time of hatching. If weakly, she would probably sip at the honey a while and then proceed to annihilate her rival sisters. As far as my observation goes, queens do not tear down the cells themselves, but simply make a small hole through the side of the cell, and leave the bees to complete the job, as they are quick to see whether a cell has thus been punctured. ERNEST.

HOW THE YOUNG FOLKS MANAGE THEIR FATHER'S BEES.

I have a sister and brother who are bee-keepers. Willie stays at home, and Annie attends the yard at Rudleton. There are 97 swarms at Rudleton, and about 78 at home. Annie has kept the yard at Rudleton for three years, and Willie the one at home for four.

I am very much afraid of the bees. Last summer Annie had to stop work, for the bees sometimes were that cross.

HOW TO HIVE A SWARM OF BEES.

A good way to hive bees is: Take a salt-sack and sew the mouth of it to an old barrel-hoop, and have a long pole to it. If the bees are up high you can easily get them down. We spread a white cotton sheet on a table, and set the hive on it, and upset the bag on it, and the bees will crawl right into the hive. You must move the hive on to the stand you want them to occupy, or else you will have them go right to the place where they alighted on the tree after they swarmed. MARTHA MOFFATT.

Maxwell, Ont., Jan. 15, 1886.

Let me see; your father wrote an article for the last GLEANINGS. Has he discovered the art of "making himself useless," and so pressed the younger ones into service? I judge so, if Willie and Annie manage 175 swarms.—The swarming device you mention is illustrated and described in the A B C book, page 253. ERNEST.

CLEANING WAX FROM UTENSILS.

Some time ago I saw a letter from some one, and in it telling how to clean waxed dishes; and I thought by your answer you did not know of any better way, so I concluded to write and tell you how we clean ours. Heat the dish on the stove; and while hot, rub well with any kind of soft grease; then wash with hot soft water and soap, and it will come clean easily, and without any trouble.

AN INTELLIGENT DOG.

I have a sister, Nellie, fourteen years old, and a brother, Lloyd, seven years old. Lloyd has a dog that he thinks a good deal of. When you put your hand on a chair, and "shake hands," he will jump up on the chair and hold out his paw to shake hands. His name is Dash, and he is seven or eight months old. There is a big patch of ice a little way from our house, and sometimes we take the sled over there and Dash will draw us on it, back and forth on the ice; and when we are riding down hill he will, of his own accord, take the end of the rope in his mouth and draw the sled to the top of the hill.

HOW AN ABSCONDING SWARM WAS ARRESTED.

Last summer Lloyd and I saved a swarm of bees for papa. He came from the field where he had been at work, and saw a swarm of bees going off. He grabbed a pail of water and went after them. We watched him until he went down in a valley out of sight, and then Lloyd and I took a pail with some water in it and went after him in hopes of catching up with him and stopping the bees. We ran up hill and down till we had gone about half a mile, and then we saw papa coming to meet us, after the water; but there was not much left, for we had run so fast, and over such rough ground, that we had slopped it all over, but it saved the bees. Papa went to the house and got an old nail-keg, and put them in it and brought them home and hived them.

FRANCES E. WORTH, age 12.

Reading Centre, Schuyler Co., N. Y.

The plan you mention, of cleaning wax, if I mistake not, is a combination of the method given by C. C. Miller, page 704 (to which you refer), and the one given in the A B C book, page 287. Benzine is also there recommended as being effective in removing wax where the utensils are inconvenient to cleanse otherwise. No doubt any one of the plans enumerated answer as well.—Well, I am sure you deserved that swarm of bees, after such a "slopping" over. Did the bees cluster immediately, or soon after the water was thrown upon them? ERNEST.

CHARLIE'S HIVING-BOX.

My papa has taken GLEANINGS ever since I can remember. He has got 75 colonies of bees now. In the summer I help him hive the swarms. Papa has hiving-boxes. They are something like a little hive with an alighting-board and an entrance. They are fastened to the end of a pole. When the bees commence to alight we set the hiving-box up under the bunch of bees. They go into the box. Then we take them down and hive them when we get time. One thing I learned last summer. If you take bees from the entrance of one hive and throw them down on the entrance of another hive, you are pretty sure to get stung. I tried it, and got three stings. CHARLIE H. MASON, age 9.

Mechanic Falls, Maine, Jan. 5, 1886.

Thank you, friend Charlie, for your very plain description of the hiving-box. This, constructed with an alighting-board, would doubtless work very nicely; but I should be afraid that a large swarm of seven or eight frames would be in danger of smothering in a small hive. For that reason the hiving-box figured in the A B C book is perforated by a good many holes. Come to think of it, in our practice in our own apiary we hive swarms very much as you do, only we use a full-sized Simplicity hive. As there are no large trees in our apiary, when a swarm issues it generally clusters on one of the low evergreens on the outskirts of the apiary. We then take a Simplicity hive with some empty combs and a frame of unsealed larvæ and place it so the entrance is directly under the cluster. The hive is held at the right height by one or more Simplicity bodies placed beneath. The bees are soon inside, and the hive is located upon its proper stand. This is the way we generally hive our swarms. So much for no tall trees in the apiary.

ERNEST.

BEES THAT WOULD NOT UNITE; HOW THE ENGRAVINGS FOR GLEANINGS ARE MADE.

I am living at grandpa's, and going to school. Grandpa had 20 live stocks of bees on Jan. 1, for they had a big fly; but he thinks it will be the last one for many of them, the way the winter keeps. Part of the bees are packed in leaves, and fed sugar syrup, and part are in box hives, left on their summer stands, to take their chances of living or dying.

Two seasons in succession have been too poor for honey here. Grandpa tried to double up some by setting one hive on top of another, but they would not go down nor up; so after two weeks he set them off where they belonged, then they were glad, and came out as usual.

I like to read the young folks' letters in GLEANINGS, so I thought I would tell you about our bees, and may be it would not be thrown into the waste-basket. Grandpa wants me to ask you to explain, if you will, just how engraving-plates are made, so you can make a picture of any thing you want; but if there is any secret about the art, let it go. Grandpa doesn't use tobacco any more since he got the smoker you sent him.

MAUDIE MAY MINX, age 10.

Pine Grove, Gallia Co., Ohio.

You ask how our engravings are made. We first take a piece of boxwood or maple, the depth of the type (nearly an inch), and the size of the picture desired. Upon this the engraver draws with a pencil the object he wishes to represent, and then retouches with India ink. The face of the boxwood is very hard and smooth; and when the picture is done, it looks like any pencil-drawing. Next the engraver uses several sharp keen-edged tools with which he carves the block, leaving only the black lines of the pencil. The shading is represented by parallel lines —the darker the shading, the heavier and more compact the lines. When this is done we have a raised picture which prints the lines and delicate shadings just like the types you see in a printing-office. If you notice closely any of the engravings that appear in GLEANINGS you will see what I have explained. Nice engraving is one of the fine arts, and good engravers get high wages—five, ten, or even more dollars per day.—In regard to doubling up, you do not say anywhere that one of the queens was taken away before uniting. From this. and your description of the colonies, we infer that both had a queen after they were doubled up. This might account for their not uniting; though, as is sometimes the case, two colonies are united regardless of queens, when one will be killed by the bees. I should judge that both your grandfather's colonies remained entirely by themselves, not interfering with each other's queen. ERNEST.

Dear Maudie, do you want to know what part of your letter rejoiced my heart more than any thing else? It is, that your grandpa does not use any more tobacco, and that it is his little grandchild who is telling it to the readers of GLEANINGS, and rejoices in her little heart that he is purer in mind, purer in body, and, I am sure, purer in heart, for the sacrifice he has made for his little grandchild's sake, for our sakes, and for the dear Savior's sake. May God bless him, and help him; and may he be cheered by reading in that good old Bible, "Blessed are the pure in heart, for they shall see God."

A DONKEY GETS INTO TROUBLE WITH THE BEES, WHEREUPON HE "BRADE;" PEKIN DUCKS, AND THEIR VALUE IN AN APIARY.

As there is something so original in Joseph's letter we insert it just about as he wrote it, spelling and all.

My "intelligence" is so little, i do not no of any thing to write that will interest, but you must excuse this one, as it is the first. I like to help pa work with the bees except such a one as that cross hybrid stock that stung Pa so much threw his Briches and run him off to the spring and me under the flore. They drove the young mule colt that was 30 feet away, and made him kick and snort; his hare was long, and they tangled in it, but he soon flew a way and "brade" as he run. Pa says the holy land Bees Will suck 3 flours while the italians will suck 2; he says they do not fool time away in Buzing a Round as the italians do. We keep sawdust 3 or 4 in. deep in our apiary; the ants and frogs will not work in it, the frogs have no place to hide as the dust keeps the weeds down; a frog will eat 50 bees, if he can get them. so much for sawdust. The Pecan Ducks has a good chance to ketch the moth miller between sundown and dark. The ducks go among the hives every evening and ketch every miller that flies; no grass in thear way, so they always lit on Pekins, every one that fly. These ducks is worth keeping for this alone; be sids each duck will lay 200 large egs every year, then they weigh 15 lbs. to pare of 2. The feathers is beautiful and white, and the meat is as nice as chicken. So come and see us and wee will have a big fat one for dinner. JOSEPH S. G.

So it is a donkey this time, and not a horse that meets with a mishap among the bees. No wonder the poor fellow "brade" when a lot of hybrids got after him. I think we shall have to conclude that it is *never* safe to have our domestic animals anywhere near the bees.—I have sometimes thought that the Holy Lands seemed more industrious than the Italians; but for some reason they never seem to have very much honey in the hive. Perhaps it is their disposition to breed so heavily that keeps their supply of honey low.—An apiary with sawdust three or four inches deep makes a very pretty appearance; but in time, according to our experience, the weeds will come. As to toads, I suppose the sawdust answers very well. You say a toad will eat 50 bees. Did you ever count the number? Last month a little girl told us of a toad eating, by actual count, 150 flies, so I presume it would be no very great task for Mr. Toad to eat 50 bees. That being the case, they are not very profitable in the apiary.—We are glad to know that Pekin ducks are valuable in the apiary, for getting rid of moths. We have a pair of them in our poultry-yard, and I don't doubt but that they would render very good service, providing it were something to eat, for they are big eaters.—You have given us so many good points that I think you are entitled to a chromo. ERNEST.

Friend Joseph, I want to add a word to what Ernest has said in regard to your little letter. It is full of original thoughts, and shows a progressive spirit for one so young —at least, we suppose you are quite a small boy, although you do not give us your age; and in regard to the spelling, you have probably done tiptop for so small a boy. We give your letter just as it was written, so the juveniles can exercise their talents in the line of proof-reading by correcting all the mistakes made. Now, then, who will count up and see how many errors there are in Joseph's letter of 27 lines?

OUR HOMES.

Supper being ended, the devil . . . . put it into the heart of Judas Iscariot, Simon's son, to betray him.—JOHN 13: 2.

WHO is there who has not pondered over this strange and apparently incomprehensible matter of sin in the human heart? We might almost think that poor Judas was not very much to blame here. Sometimes we are almost inclined to think it was the devil's fault entirely. Had he left poor Judas alone, Judas might have been as good as any of the rest of the disciples. These questions are undoubtedly beyond our province; but even if they are, does it follow that the other disciples were left alone? Didn't Satan try them, each and all? What is sin, any way, and what is the use of it? I speak reverently, without any disposition to question the wisdom of the Almighty. In fact, I wish in this paper to help you all, dear friends, toward a better comprehension of God's wisdom, goodness, and love to us, his poor fallen creatures.

A temperance lecturer gave me a vivid idea of sin, a few evenings since, when, perhaps, he did not intend to. He was likening intemperance to the cholera, and he spoke of the time when the cholera threatened to invade the shores of America. He told how we all went to work, not only in the large cities, but in the towns and villages, to prepare to meet the dreaded foe. We established boards of health, who went around and examined the cellars and outbuildings, and they were clothed with authority to demand and insist that the people should be clean, and take care of themselves. Our cities were purified and slicked up; our most intelligent physicians and scientists pointed out the probable cause of such epidemics, and from one end of the land to the other a general reform was inaugurated. Did we meet and conquer the foe? Yea, more. The result was as any sane man or woman might have guessed. Not only did we keep away the cholera, but the death-rate was rendered less, to the number of inhabitants, than it had ever been before. We demonstrated, by figures, that not only cholera, but typhoid fever, yellow fever, and no one knows how many other ailments, were capable of being controlled. We began to see that disease could be led captive, the same way in which father Cole has "the waters led captive." The point the lecturer made was this: Who did this, and who should have the credit of it? Was it the Republicans? Surely not. No such thought was ever uttered, that to the Republicans belonged the credit of the sanitary measures put in force in our cities. Well, was it the Democrats? Why, no. Was it the Prohibitionists, or were the Prohibitionists more active than any of the other parties in this matter? True, they might have been, and may be they were; in fact, I think they *ought to have been*, according to their profession; but nobody ever mentioned it, if such was the case. Neither was it any religious sect, nor was it the women who led the movement principally. Of course, they did their part, and may be in one sense they took the lead, because women are naturally more in favor of order, cleanliness, and purity, than the men are; but they never claimed any more credit, and no one ever claimed it for them. To whom, then, does the credit belong? Why, to all of us. The people united, no matter what were their politics, religion, age, or sex; and when you get our American people united on any thing, we are *bound* to succeed. Did you know it, my friend? Well, why can't we be united in other good works? Why not be united in resisting Satan, the prince of all evil, and the prince of the powers of darkness. Why, the great truth lies here: The cholera was a common foe; the cholera hadn't a friend any where. Even the man or woman who had determined on suicide didn't want the cholera. He was recognized as a universal enemy and fiend, and we massed our powers against him. Now, then, why not do the same way with intemperance? or, if you choose, why not do the same with sin and Satan in *every* form? Because men *love* evil in its varied forms. Jesus told us, centuries ago, that "men loved darkness rather than light, *because* their deeds were evil." But, why do men love evil? To get a better view of it, why do *we* love evil? Why shouldn't evil be like the cholera—a hideous and hated foe to every one? Perhaps, had Adam not fallen, such might have been the case; but so long as the fact remains that it is *not* the case, and that we, for the time being, love sin and Satan, will it not be wisest for us to meet it as it is? We are in a fallen world: what shall we do?

I have talked to you at different times, of late, in regard to making the elements, that do us harm, our servants. The sudden and terrible frosts of winter get into our cellars, and freeze our vegetables, and away go hundreds of dollars in a single night, because we didn't expect such a freeze. During this present winter, we are told that the friends in Florida have suffered the loss of over a million of dollars by the freezing of their oranges, and that such a frost has not been known before for over fifty years. Shall we sit down helpless before old Boreas, and call it a "dispensation from God," and say there is no help? God forbid! By the help of science, we shall get more and more able to manage these erratic forces of nature. Let us employ these freezes in converting water into big blocks of ice; and let us carry the big blocks of ice into these same cellars, and make them arrest rot and decay in these same fruits and vegetables that the frost was before liable to destroy. By recent inventions in cold-storage rooms, apples can be kept safely from one year to another. Strawberries can be bought up, when five cents a quart, and kept until the glut in the market has passed by, and then sold at good paying prices. We do this by simply knowing how. The frost becomes our *humble* and *obedient servant*, and does our bidding so faithfully that a good cold-storage room need not vary more than two or three degrees in a year. Careful experiments have shown us just what temperature apples and strawberries, and other commodities, should be kept in to preserve them from either becoming spoiled by too much heat, or from freezing; and with a properly arranged cold-storage room, the matter is a complete success. Now for the application.

A good many of us have hasty tempers. I do not know that *hasty* is the right word. Some of us have tempers that are slow, and yet unmanageable even then. Perhaps they are the curse of our lives: what shall we do with them? I will tell you, friends. By the help of God we can handle them as we do the frosts of winter. When the temper comes up, and you recognize it boiling and seething to get out, set it to work making great blocks of ice, as it were. Put these blocks away until you need them. They will prove to be a tremendous motive power, if properly managed. Don't kill out a boy's spunk; find some place where he can use it and utilize it, and he will be as great a power for good as he has been for evil. The temper needs to be a *sanctified* temper, and I believe that such a thing is possible. Let me tell you a little of myself.

Sometimes, on going my rounds after the work is over for the day, I find property scattered about in heedless disorder. The vegetables and fruits that should be in the cold cellar are left, may be, near the steam-pipes, while something that should be kept warm is possibly put where it will freeze. May be I have talked with the one who left them so repeatedly, and it does not do any good. His mind is on something else. Perhaps he cares more for the small wages he receives, than for the welfare of property worth ten times these wages. My temper comes up. I try to put the subject out of my mind, but it won't come away. Perhaps it is Saturday night, and I begin thinking, "There, my enjoyment of the Sabbath is all gone, for I feel so worked up by this matter." May be, instead of the loss of property, some new convert in whom I had much faith has been going off with a crowd of boys, to go in swimming on Sunday; or perhaps some one who has given me the most faithful promise in regard to tobacco has been smoking on the streets. Satan tries to enter my heart, or tries to tempt me, and suggests, "I wouldn't fuss or bother any more with that miserable specimen of humanity. I would send him somewhere else for a job, so quick he wouldn't know what is the matter with him, and I wouldn't wear out my life and strength in chasing around after any more people, so utterly unprincipled and irresponsible." Dear friend, do you suppose I feel happy when I arrive at such conclusions? Why, bless your heart, no. If I allow my mind to dwell on it, the more the feeling of indignation wells up, and I begin recounting all the kind acts I have done, and thinking, "And that is just the pay I get for it—that is my reward." Then I remember some one else who has made a bad mess of something or other, and I feel like saying, "I am going to give the whole thing up, and not try any more." I remember the boys in jail. It is too bad to chop right off, and not visit them any more. But Satan suggests, "You might just as well. This has so upset you, that you haven't any spirituality left any way;" and for the time being I actually think and believe that all the enjoyment of the coming Sabbath is surely at an end. However, I conclude to go through with the duties that lie before me, the best I know how, keeping it all to myself, and bearing it as best I can. About this time it occurs to me that I have proven, by hundreds and hundreds of similar experiences, that the only outlet is to go down on my knees and tell my troubles to the Friend of sinners. Is it right to get down on your knees when you are mad? Why, to be sure it is—that is, providing your "mad" is not the kind that prompts you to turn from the Savior. If you are vexed and disturbed, but still *loyal* to him, *by all means* go down on your knees. Just let loose your feelings, or, in other words, take one of those big blocks of subdued temper and tumble it at the Savior's feet. Tell him your troubles and trials; ask him to help you to honor him in whatever you do; and if, when you get up, you haven't got clear out of the toils of the tempter, don't worry nor trouble yourself very much. Pitch into business; straighten up the things that are wrong, *yourself*. Make up your mind to bear the burdens of the world, even as the Savior bore them; decide to be patient andlong-suffering for his sake, if not for their sakes. in other words, take your cross and follow the Master.

> Then said Jesus unto his disciples, if any man will come after me, let him deny himself, and take up his cross and follow me.

Whenever the subject comes up again to annoy you, put it persistently out of your mind. If it should occur to you during the sermon on the Sabbath, just say over to yourself, "Remember the Sabbath day to keep it holy," and stop thinking about it, and, first you know, the matter will dwindle into insignificance, and you will be surprised to find yourself happy and peaceful. I remember how, years ago, when I had started to go to my mission Sabbath-school, full of the spirit of the Master, and thoroughly happy, on my way I passed through a field of my buckwheat, just beginning to ripen into seeds. I picked off a few, and was startled to notice that it looked like common buckwheat instead of silverhull, which we meant to have sown. All at once my mind suddenly reverted to the time when one of the hands moved some bags of buckwheat, and in a minute it was clear to me (or at least I thought it was) that that heedless hand had been the cause of making that a beautiful field of common old-fashioned buckwheat, instead of silverhull. My face grew hot with impatience. I fought and struggled against the tempter; but the vexation was so great, that every spark of God's Spirit seemed to be quenched out of me, like the blowing-out of a lamp. I dare not put on paper the bitter feelings I had toward that careless hand. Why, my friends, if your temper is like mine under such provocations, may God in his mercy have pity on you. My mother used to tell me, when I was a child (as I have mentioned before, perhaps), that I would surely die on the gallows, if I gave way to such spells. Some of you may say, "Why, Mr. Root, I thought you professed to be a Christian. Here you are making a confession of getting mad, even so your face was flushed, and that, too, on the Sabbath day, when you are on your way to a mission Sabbath-school to teach a lot of children, and a little community, the way of eternal life. Shame on you, for a hypocrite!" Hold on, hold on, my friend. I was terribly vexed and stirred up, and my heart seemed to beat like a small locomotive; and right here I want to thank God for having put a small locomotive in even this feeble frame. It was bad, I know. My temper should have been more perfectly sanctified; but, dear friends, the but recently converted boy was doing the best he could. I was alone in the fields. I was under God's blue sky, and under his overshadowing love as well, I am sure. I prayed him to take the tempter away. I have sometimes wondered why he didn't do it. I prayed for perhaps nearly half the way of that five-mile walk to my school; but it was some time before the fierce passion began to "let up." How about the school? Why, God took care of the school, and he took care of me, and it went off all right, and I came home breathing praises, and singing, "Thy will be done," or something to that effect.

On Monday morning I examined into the seeds carefully, and found there was no mistake in the sowing. I also discovered that silverhull buckwheat looks very dark, or almost black, when it first ripens in the field, but that the silvery look comes on afterward.

Do you want to know what good came of this little experience? Why, it resulted in making a good lot of great blocks of—what shall I call it?—subdued and sanctified energy—a kind of energy and push, freezing up, as it were, like the blocks of ice, to be kept until it could do some work. The work done was a vehement determination to have our seeds so perfectly labeled, inside the bags and outside the bags, that no such accident could happen as happened that year; that is, such an accident as happened only in my imagination and uncharitableness. This very event, perhaps, did more toward building up an immense trade in seeds, than almost any thing else could have done. A sanctified temper that was piled up that day, is, some of it, there yet; and when I find a lot of seeds not plainly labeled in at least *two* different places, the energy stored up begins to make itself shown. Is it not well, for me at least, that God has permitted me to be tried, and severely tried? Do you remember the lines of the little hymn I have several times told you about?—

Joy to find, in every station,
Something still to do or *bear*.

In my case, my temper came up that day a good deal because my whole heart and soul were so taken up with raising honey-plants, and testing them, that I should have been terribly disappointed if the right kind of seed had not been sown. My feeling was in some respects commendable, but I was wrong in being impatient or hasty. A great many other times in my life, when I have been sorely tried by disappointments because of some such accident, instead of venting my spite by harsh and unkind words, I have gone off by myself and poured out my soul in prayer, asking God to use this intense determination to have a better state of affairs; and when I started back to my work I have felt like saying to myself something like this: "Now, *you see* if I don't have this thing fixed in some way so that this blunder *can't* happen again," and the energy and determination was the very thing which pushed me toward some important invention—not only helping myself, but you also, through the medium of these pages of GLEANINGS.

But, how shall we make an appetite for strong drink or tobacco, or something of that kind, work out good? How shall we freeze *this* sin into blocks of ice, to be saved up? Perhaps we can manage as father Cole has managed with the rains and floods—drop them down out of the way, where they will be harmless, but where they may at some time do us good service, after the harm is past. Satan sometimes gets hold of us because we are uneasy and discontented. We want something, or want to go somewhere. Because we feel uneasy we let our minds wander toward the forbidden thing. We want some excitement, or something to do. Life as it is, is too monotonous. I have been through all these experiences, and I will tell you what I did. I prayed God to help me to put his image in the place of the thing that would do me harm. I prayed him to help me to substitute, in place of the thing that would harm me, and harm my fellow-men, a love for my Savior that would surely do *good* to my fellow-men, and the prayer has been over and over again answered. I have lately been thanking God for giving me such a keen zest and enjoyment in raising plants and vegetables, and I have thanked him for the consciousness that this is an innocent and harmless amusement, if nothing more, and I have certainly never enjoyed any thing else so much in my life—no, not in the whole forty-six years of my life, even including happy childhood. We want to let these lower appetites and passions down on a lower level, where they belong, where they will be servants and not masters, just as friend Cole lets down the water from the rains. God's Spirit is to rule, and these other things are to be secondary.

A great temperance movement has taken place in our town, and this morning almost all the hard drinkers here are wearing the blue ribbon. Last evening we were disappointed in getting a speaker from abroad, and so the responsibility fell on our home talent. A hard-working man, whom I have known for fifteen or twenty years, and one whom I have seen go down into intemperance, and come up through a Murphy pledge more than ten years ago, after much urging took the floor. He told us about the conflict of ten years with this fierce appetite. Three points come right in with this Home Paper, and I want to mention them. Satan tried to enter his heart again, as he did with Judas, and this is the way our friend resisted. He said there were times, especially toward the close of the day, when it seemed as if he could not live without a drink; but he went resolutely home, kept away from evil associates and temptations, and went to bed without the drink. In the morning it was all over. The fierce gnawings of appetite were gone, and gone a thousand times better than had he given way to it. He said this not only happened for months, but for years. Finally he was taken sick, and came near death. The doctors gave whisky, as usual. When he began to come to himself a little, he tasted the whisky in his medicine, and remonstrated with his attendant, a near neighbor. The neighbor told him he must take it, or else death would probably result. Well, our friend John is an Englishman, and he has his full share of English spunk and stubbornness; in other words, he has a good "big chunk" of a temper, like myself. He replied, that he was not going to take whisky for *anybody*. They sent for the doctor.

I can not give his exact words, but the substance of them is about like this.

"Mr. E., this is serious business."

"Well, doctor, that is exactly what I think."

"If you take the stimulant we think best for you, you will probably get well; unless you do take it, we don't see any help for you."

Still our English friend was immovable, and the doctor resumed:

"Mr. E., which would you rather do—take whisky, and get well, or go without it, and die?"

The old hero looked the doctor full in the face, and quietly replied, "*I would rather die.*"

At this point in his speech the audience encored until it seemed as if the building would come to pieces. Now, boys, *that* is *the doctrine.* When Satan tries to enter your heart, tell him squarely and decidedly, "*I would rather die.*" Was this foolhardy? Not a bit of it. Which is better—to live, with a great prospect of dying eventually the death of a drunkard, or dying an honest death, free from the influence of stimulants? "What shall it profit a man, etc.?" What are a few years of life worth, providing the life is a life of sin? When Mr. E. first signed the pledge, it was at a Murphy meeting. He had always been much in the habit of staying at home on Sundays; but this Sunday evening, as he was out later than usual, his wife looked up inquiringly.

"Where have you been, John?"

"I have been at the temperance meeting."

She looked up, somewhat astonished.

"What did you do there?"

He put his hand in his pocket, and took out a Murphy card, and showed it to her. Poor woman! She, like the rest of us, lacked faith, and inquired if he thought he could keep it.

"Jane," said he, "did you ever know me to sign my name to a paper when my signature didn't mean something?"

"No, John, I never saw your name signed to a paper unless it meant all that was written above it."

She took the little card and framed it with a fancy frame of straw, worked out by her own hands, for she is an English woman, and understands fancy straw-work, and hung it up on the wall, and whenever John looked up at the clock to see the time of day, there stood his Murphy pledge, right above his own handwriting. It was an *object-lesson*, and a reminder. And so John pulled through the years as they passed by. He has now a nice little home; bright and educated children, and he is a man whom the town of Medina delights to honor.

Dear reader, do you see that even an Englishman's stubbornness can be made to serve God? And do you see now that what is needed to bring about this glad millennium in our United States of America is, that these tempers and this stubbornness shall be sanctified and consecrated, and laid at the feet of Christ, telling him, "Here, Lord, I bring myself and all that I have—my appetites, my passions, my fierce temper, and lay them all at thy feet; and I ask thee to help me to say in real earnest, 'Get thee behind me, Satan.' And when the devil shall try to put it into my heart to do evil, and forget thee, may I, too, have grace and strength to say, 'I would rather die.'"

I need not add, that our friend did not die, in spite of what the doctor said; neither will *you* die either, my friend, although you may think you are going to die; for has not the Savior said,

> Whosoever liveth and believeth in me shall never die?

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 15, 1886.

> Thou art weighed in the balances, and art found wanting.
> —DAN. 5:27.

PRICE OF 241-LB. SCALE REDUCED.

WE are pleased to tell you that we are able to sell these at $3.50 each, or $6.50 for two, and the double beam one-third more. These are the same scales that we have sold for years; and as the manufacturers gave us a better rate this year, we take pleasure in giving our customers the benefit of the reduction.

A CORRECTION.

IN noticing circulars received, in our issue for Jan. 1, we gave the address of J. D. Rusk, Milwaukee, *Oregon*, as Milwaukee, *Wisconsin*, which last is wrong. While we are about it, we must say we think it somewhat unfortunate to name new and small towns New York, Chicago, Philadelphia, etc., when plenty of other good names can be found; and this hint is in accordance with the suggestions of the U. S. Postoffice Department.

PERHAPS I should tell the juveniles, that in the picture on page 142, of our greenhouse, the figures in the foreground are supposed to be myself and Huber. The picture of myself is pretty fair, only the engraver doubtless supposed that the sun was shining from the west, and so he pushed my cap down over my eyes, as you see. He has got Huber pretty fairly, only he ought to have pictured him about half as tall as his papa.

ANOTHER USE FOR THE TRANSPLANTING-FRAME.

THE transplanting-frame, shown on page 136, is also an excellent arrangement for sowing seeds of certain kinds. We have some beautiful beds of onions, made by putting the onion-sets, one in the center of a row of meshes, then skipping a row, etc. Beets, also, may be quickly and accurately sown in the same way. By means of this frame, any child can put in seeds, and get the spacing exactly right. All you have to do is to pick up the frame, and put it down again until the seeds are in.

160,000 SECTIONS AT $2.25 PER 1000.

WE guarantee our first-quality sections to be equal to or better than any in the market; and in order to make them so, we have culled out all that are colored, or in any way not up to the standard. Now, these second-quality sections are like "thirds" in crockery—they are just as good for service, but do not look quite as well as firsts. We have now in stock 160,000 of these sections; and as long as we have any on hand we will sell them at half price of the first quality; i. e., $2.25 per 1000; or, for 5000 or over, $2.00 per 1000.

SEEDS OF BASSWOOD-TREES.

SINCE writing on page 143, in regard to this matter, we have received the following from friend Kendel, of the Cleveland seedstore:

> The seed of basswood and linden can undoubtedly be obtained now; but, how about its germinating? We can not tell. The last, and, in fact, all the tests we have made in hot-beds have utterly failed. A. C. KENDEL.
> Cleveland, O., Feb. 9, 1886.

In view of the above, probably we shall have to give up the seeds; but I discover that E. H. Ricker & Co., of Elgin, Ill., advertise European linden seedlings at $8.00 per 1000. Now, who is there who can furnish us seedlings of the American linden, at as low a price, or still lower? And who can tell us about the quantity of honey European linden furnishes, compared with our American? I know this ground has been gone over before, but I don't think it will hurt us to consider it again.

REDUCTION IN PRICE OF WIDE FRAMES.

By the new method of filing saws, we do away with the planer on sections, frames, etc., and turn out nicer work, smoother and better finished, than ever before. Besides making them nicer, we can also sell them cheaper. Wide frames in the flat, Simp. size, to hold 8 sections, or the same crosswise Simp. to hold six sections, or, either one one-half depth to hold 4 and 3 sections, also 3 section-cases—any of these we can furnish at $2.00 per 100 or $18.00 per 1000. For odd sizes we always charge $1.00 for setting machines, then you may have any quantity at regular prices.

ANOTHER IDEA IN REGARD TO REVERSIBLE HIVES.

SINCE brood combs of half depth are brought up again, some friend, whose name I have forgotten, suggests that there is not much need of reversing frames when we can reverse the position of these shallow frames so easily. For instance, we have made L. brood-frames of half depth, with half-depth Simplicity bodies to match, for years. In fact, there have been so many calls for them that we have them in stock in case of possible orders. Well, when the bees get the brood pretty well in the lower set, and capped honey, a good deal of it, in the upper set, instead of reversing any of the frames, simply put the upper set on the bottom-board, and the lower set over them. This brings the sealed honey right in the center of the brood-nest, and the bees would probably take it up and put it in the sections, as well as if the frames were reversed, or nearly as well. Have any of the friends been in the habit of working half-depth frames in this way? Half-depth wide frames have also been made for these half-depth Simplicities; in fact, they are in our price list, and have been for years.

BEANS, FOR MAKING HENS LAY.

IN our issue for January 15 I mentioned that we got only one egg a day from about a dozen hens. Well, some time ago we bought quite a lot of white-marrow beans from a farmer—so many that we hand-picked out about a bushel of beans, off in color, etc. The women were going to throw these beans away, but I suggested that they be cooked, and given to the chickens. We tried them first with about a pailful. Well, our flock of hens, with a little assistance from the rabbits and ducks, ate most of the pailful at a meal. What do you think the result was? One egg the next morning before breakfast time (*my* breakfast time, not the hens'), and two more during the day; and although the weather has been down close to zero, we get four or five eggs a day ever since the diet of cooked beans was adopted. Some of the same food was given to the flock at the warehouse, and they commenced laying too, although the weather was so cold their eggs froze before we found them. Now, was this simply the result of a change of diet, or are unsalable beans cheaper and better than the much-lauded egg-foods? Before the beans were fed, the fowls had wheat, oats, and bone meal, as well as soft cabbage-heads, all they would eat. I leave the question with the editors of our poultry-journals to answer. The following is clipped from the *Practical Farmer:*

> There are countries where the almost exclusive diet of the masses is beans. These contain 87 per cent of nutriment.

Now, beans fit for poultry can probably be bought for a dollar a bushel or less. Refuse beans, thrown out by hand-picking, should be procurable at a very low price. For some time I purchased wheat-screenings at a cost of 40 cts. a bushel; but when I discovered that I could get good sound wheat for from 85 to 90 cts., I decided that the wheat was cheaper, and I think so yet. Now, is not a bushel of beans worth as much, or more, than a bushel of wheat, besides the tendency they seem to have to produce egg-laying?

ALLEY'S
DRONE & QUEEN TRAP.
Send 65c. and get sample by return mail.
HENRY ALLEY, Wenham, Mass.

For Sale. I have a Root $25.00 fdn. mill, bought about three years since, almost as good as new, with dipping-tank and all complete. They cost me, when new, $27.50, and $7.00 duty. I wish to sell them, and will take $18.00 for them. A. W. WILLOWS.
4tfdb Carlingford, Ontario, Canada.

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NORTH-WESTERN CHAFF HIVES, 4-PIECE SECTIONS DOVETAILED, FRAMES, HONEY-BOXES, ETC.

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Wanted. Situation as apiarist, for wages, or bees on shares, in one of the following States: Louisiana, Arkansas, Tennessee, Kentucky, or California. Fourteen years' experience; can do all manner of hive work or foundation, etc. Address
3-5db S. SMITH, New Smyrna, Volusia Co., Fla.

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Spawners, 10 to 12 inches in length, per doz., $6.00
" 8 to 10 " " " " " 5.00
Small fish, 2 to 4 " " " " 100, 5.00

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FOR SALE. Five pair fine Pekin ducks, at $4.00 per pair.
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NICE FOUNDATION, 35 CTS. PER LB.
W. T. LYONS, Decherd, Franklin Co., Tenn. 345d

Eggs, $1.25 PER 13, from pure-bred, single-comb Brown Leghorns. Unexcelled layers. Address H. B. GEER, Nashville, Tenn., or E. W. GEER, St. Mary's, Mo. 3-8db

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Wanted. A partner, to go in the bee and supply business with me, for the business is increasing so fast that I can not manage it myself. Address or call upon LOUIS WERNER,
3-4d Edwardsville, Madison Co., Ill.

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WATTS BROS., Murray, Clearfield Co., Pa.
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MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS, TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c. PERFECTION COLD-BLAST SMOKERS,

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

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LOOK HERE!

To introduce my strain of pure bright Italians, equal to any in the United States, I will offer tested queens, $1.00 each; extra fine, selected, $1.50 each; one-frame nucleus, consisting of one extra select queen, one frame of brood, ½ lb. bees, for $2.00. If you want any bees, send me your address on postal and I will send you sample by return mail. Beeswax or honey taken in exchange.

22tfdb **THOMAS HORN,**
Box 691, Sherburne, Chen. Co., N. Y.

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

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SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

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DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

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75 COLONIES OF BEES FOR SALE.
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Will be sent **FREE** to all who write for it. It is a **Handsome Book of 128 Pages,** with hundreds of new illustrations, two **Colored Plates,** and tells all about **the Best Garden, Farm** and **Flower Bulbs, Plants, Thoroughbred Stock** and **Fancy Poultry.** It is the only complete catalogue of the kind published, and describes **RARE NOVELTIES** in **VEGETABLES** and **FLOWERS,** of **real value,** which can not be obtained elsewhere. Send address on a postal to

W. ATLEE BURPEE & CO., PHILADELPHIA, PA.

3-4-5-6-7d

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SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.

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BEE-KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, 48 pages; FREE to all bee-keepers sending address to

3tfdb JOS. NYSEWANDER, Des Moines, Iowa.

J. W. K. SHAW & CO.,

Specialists in Italian-Queen Rearing

Order early, to give us the pleasure of filling orders promptly, by return mail — a pleasure to the sender and to the buyer. All from imported stock. We have no others. Prices: Untested, $1.00; tested, $2.00; dozen, $10.00. To dealers, special rates.

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One second-hand fdn. mill that will roll sheets 14 inches wide. The mill is at present in New Hamburg, Ont., Can. The original price on it was $40.00, but we will now sell it at half price, or $20.00.

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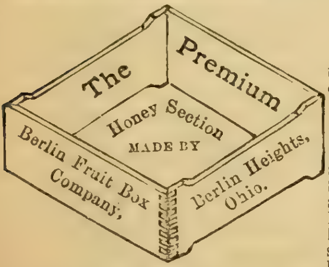

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First Premium twice, and the only instances they ever competed, in 1884 at Michigan State Fair, and in 1885 at the Inter-State Fair, held at St. Joseph, Mo. The excellence of these sections is acknowledged by many leading bee-keepers amongst whom are the following, who handle and use them:

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The last-named gentleman writes us, "The lot of sections I got of you (10,000) were very nice and perfect. I am not satisfied in saying I was pleased with them—I was delighted. They were bright and perfect as new-made coin. I have no hesitancy in saying that your make of sections is superior to any I ever saw. There is practically no breakage in folding. In trying them I folded 1000 without breaking a piece."

Our improved facilities for manufacturing these sections enable us to offer them at greatly reduced rates. Send for price list. Address as above. We also make the best berry-baskets in the market.

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GREAT REDUCTION IN PRICES.

Our beautiful all-in-one-piece sections, smooth inside and out, at $4.00 per 1000. For larger lots, write for prices. Send for price list of other supplies.

M. H. HUNT,

2 tfdb BELL BRANCH, WAYNE CO., MICH.

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New BooK

—BY—

JAMES HEDDON,

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Send your address for his

PROSPECTUS

—AND—

1886 CIRCULAR.

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COMB FOUNDATION MILLS.

Send for samples and reduced price list.

2tfdb JNO. VANDERVORT, Laceyville, Pa.

SUMNER & PRIME,

BRISTOL, VERMONT.

—MANUFACTURERS OF—

Bee-Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and samples free.

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Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY.

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, Germantown, Philadelphia, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; C. T. Dale, Mortonsville, Ky.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,

3btfd **Hamilton, Hancock Co., Illinois.**

BEES IN IOWA. —SEE FOSTER'S— **ADVERTISEMENT.**

SIMPLICITY HIVES, SIMPLICITY FRAMES SECTIONS, SMOKERS, COMB FDN., ETC.

In fact, we manufacture and keep in stock every thing that live bee-men need, and at low rates. Write for price list, free. Address

KENNEDY & LEAHY.
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Bee-Hives, Sections, Foundation, AND APIARIAN SUPPLIES.

Having a large stock of sections on hand, we will fill orders on Feb. at the following prices:

4¼ x 4¼, in lots of	500 to 4000,	per 1000......	$5 00
" " " "	5,000	" "	4 75
" " " "	8,000	" "	4 50
" " " "	12,000	" "	4 00

The 4½x4½ at same prices, all V-grooved.

Our section-cases and shipping-crates are as good as any in the market, at corresponding low prices. For description and prices of the **Success Hive,** send for price list. Estimates given on all other makes. Queens and bees for 1886. We make a specialty of rearing the Albino queens and bees. Price list free. S. VALENTINE & SON,
4tfd HAGERSTOWN, MD.

Look! Honey-Comb Foundation! Look!

FRIENDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills; heavy, 45 cts. per pound; very thin, for comb honey, 10 cts. more per pound; 10% discount on all orders received before April 1st. Send for free samples. Address

C. W. PHELPS & CO.,
4-5d TIOGA CENTRE, TIOGA CO., N. Y.

ITALIAN BEES AND QUEENS, Full Colonies, NUCLEI, AND QUEENS, CHEAP.

Send for Circular.

C. C. VAUGHN, *4tfdb* COLUMBIA, TENN.

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GREAT REDUCTION. Good as THE BEST! OUR ONE-PIECE V-GROOVE SECTIONS, SMOOTH ON BOTH SIDES, AT $3.50 PER 1000.

FOR LARGER LOTS, WRITE FOR PRICES.

A. M. MURRAY & CO.,
4-5 6d **Goshen, Elkhart Co., Ind.**

FRUIT AND HONEY BEARING TREES and PLANTS.

I will send by mail, postpaid, any one of the following;

100 *Catalpa-speciosa* Trees. As posts, they have stood 50 years, perfectly sound; good bee-tree.
100 Box-elder, nice shade-tree, and bees work on them early in the spring.
200 Golden-willow cuttings; make a beautiful tree; used for tying, etc.
25 Gregg Black-cap Raspberry, best variety.
50 Turner, perfectly hardy, always bears, and equal to white clover for honey.
25 Snyder Blackberry, the king of berries. Never winter-kills, never fails to bear.

Send for Catalogue to RANTOUL NURSERY,
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	March	April May	June July
Untested queens, - - - -	$1.50	$1.25	$1.00
Tested queens, - - - -	3.00	2.50	2.00
Two-frame nuclei, no queen,	4.00	3.00	2.50

3-6db Dozen rates on application.
ANNA M. BROOKS, SORRENTO, ORANGE CO., FLORIDA.

SECTIONS,

To nail, or dovetailed, per 1000, $4.50. Send 2-cent stamp for sample and price list. 4tfd
PARKER NEWTON, Earlville, Madison Co., N. Y.

ALL PROGRESSIVE BEE-KEEPERS

Suffer for my price list of Bee-keeper' Supplies of all kinds. Send for price list and be convinced.
J. W. BITTENBENDER,
4-9db KNOXVILLE, MARION CO., IOWA.

FOR SALE. BIRD and WATER DOG.

ADDRESS **EUGENE HOYT,**
4d **Highland, Madison Co., Illinois.**

NOTICE.—For $3.00 I will mail direct the great scientific work by Frank Cheshire, entitled, "Bees, and Bee-Keeping," now publishing in parts.
ARTHUR TODD, Germantown, Philadelphia, Pa.
Dadant Fdn. depot, Bees, Hives, and Supplies. 45d

50 COLONIES BEES FOR SALE.

I have 50 stands of bees for sale, hybrids and blacks, and in the Mitchell hive, 15 frames in hive, well painted, and metal rabbets. I live on the Arkansas Midland R. R., and can ship by R. R. or water via Helena. I will take $4.50 per stand, delivered on board train, and delivered by latter part of March. PETER METZ,
3-8db Poplar Grove, Phillips Co., Ark.

TESTED QUEENS, $2.00; untested, $1.00. Wax-extractor, $3.00. Other supplies. Send for circular.
OSCAR F. BLEDSOE, Grenada, Miss. 4tfd

Wanted. A bee-keeper; moral, able-bodied young man. Write at once, stating wages wanted, experience, references, etc.
4d J. M. KILLOUGH, San Marcos, Hays Co., Tex.

LEGS AND ARMS

(ARTIFICIAL)

WITH RUBBER HANDS AND FEET.

The Most Natural, Comfortable and Durable.

THOUSANDS IN USE.

New Patents and Important Improvements.

Special attention given to

SOLDIERS,

Ill. Pamphlet of 100 Pages SENT FREE.

A. A. MARKS,
701 Broadway, New York.

18-5db

Please mention this paper.

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db
A. F. STAUFFER & CO., Sterling, Ills.

WANTED.

Names of parties wanting first-class dovetailed honey sections, to whom samples will be sent on receipt of address. Also crates in season. A perfect iron section-box former sent for $1.00, and satisfaction guaranteed. **Geo. R. Lyon,**
4-9db GREENE, CHENANGO CO., N. Y.

WILL SELL 20 COLONIES OF BEES

In Simplicity hives, in fine condition, for $5.00 each, if paid for now. Will ship bees in spring. Purchasers for the above can, if they prefer, send their cash to A. I. Root, Medina, O. 3-4-5d

I. L. PARKER, TRACY CITY, GRUNDY CO., TENN.

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FOR THE MANUFACTURE AND SALE OF

BEE - KEEPERS' ∴ SUPPLIES.

The only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, etc. The Viallon and Root Simplicity Hives a Specialty.

ITALIAN QUEENS,

Untested, in April, $1.25 each; $13.00 per doz. From May 5 to June 1, $1.10 each, $12.00 per doz. After June 1, $1.00 each, $10 00 per doz. Tested, $2.50 each; select tested, $3.00 each to first of June. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

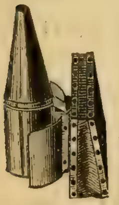
FOUR-FRAME NUCLEUS,

With pure Italian queen, containing 3 pounds of bees when received; in April, $4.00; after May 25, 25 cts. less. Safe arrival and satisfaction guaranteed.

BEES BY THE POUND,

Delivered, express prepaid, in lots of 5 pounds or more. Send for price. Same discount given as offered by A. I. Root, in GLEANINGS from month to month. For more particulars, send for catalogue for 1886. **P. L. VIALLON,**

5-3d **Bayou Goula, Iberville Parish, La.**



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LAST AND PLEASE.

CLEREMONT, VA., Feb. 9, 1886.

Messrs. Bingham & Hetherington:—

Dear Sirs:—Please find inclosed $2 00, for which send, per return mail, a Bingham "Doctor" smoker. Respectfully yours, S. H. HUTCHINSON.

INDEPENDENCE, CAL., Jan. 2, 1886.

Messrs. Bingham & Hetherington:—Dear Sirs:—

The "Doctor" came to hand last night in good order. "It is a Daisy." Won't the little pets wink their eyes when they get some of his medicine? I have one of your "Large" smokers, which has been in use six years.

Respectfully yours, WM. MUTH-RASMUSSEN.

Bingham Smokers and Knives sent per mail, postpaid, at 65 cts. to $2.00. Send for free circular to

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Our market, and location as a trade center, the rapid growth of our city and country, gives us a large demand for honey. We have found it impossible to keep a stock of 1-lb. frames, unglassed, and of which we are in need. This style of comb sells much faster than any other and we will make liberal offers on receipt of samples. We are well stocked on 2-lb. sections, also extracted. Beeswax wanted on commission. **CLEMONS, CLOON & CO.,**

KANSAS CITY, MO.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

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*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 1tfd
*S. F. Newman, Norwalk, Huron Co., O. 1tfd
*Wm. Ballantine, Mansfield, Rich. Co., O. 1tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 23tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala. 1tfd
*S. C. Perry, Portland, Ionia Co., Mich. 28tfd
*E. Kretchmer, Coburg, Mont. Co., Iowa. 23tfd
D. McKenzie, Camp Parapet, Jeff. Parish, La. 1tfd
Ira D. Alderman, Taylor's Bridge, Samp. Co., N.C. 1tfd
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*Jos. Byrne, Baton Rouge, Lock Box 5,
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New Orleans, La. 3tfd
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Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.
P. L. Viallon, Bayou Goula, Iberville Par., La. 1tfd
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FOR 1886.

Bound to sell cheaper than the cheapest, Bees, Comb Foundation, Hives, Sections, and Apiarian Supplies in general. Don't fail to send for our Circular, right off. **G. W. ALBRECHT,**

5-6-7d **DUNDAS, WISCONSIN.**

BE SURE

To send a postal card for my catalogue of **Albino and Italian Queen-Bees,** and see what my customers say about them, before purchasing elsewhere. Address D. A. PIKE,

5-7-9d SMITHSBURG, WASH. CO., MD.

CONTRACTS WANTED
—WITH—
SUPPLY DEALERS
FOR NEXT SEASON'S STOCK OF GOODS.

CHAFF, STORY AND HALF CHAFF, AND SIMPLICITY HIVES, SMOKERS, EXTRACTORS, COMB FOUNDATION, FRAMES, SECTIONS, BOOKS, ETC.,

At wholesale and retail. Unexcelled facilities. Circulars and estimates free. Successors to S. C. & J. P. Watts. Sta. Kerrmore, B. C. C., & S. W. R. R.

WATTS BROS., Murray, Clearfield Co., Pa.
1tfdb.

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

LOOK HERE

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22tfdb **THOMAS HORN,**
Box 691, Sherburne, Chen. Co., N. Y.

Wanted. Situation as apiarist, for wages, or bees on shares, in one of the following States: Louisiana, Arkansas, Tennessee, Kentucky, or California. Fourteen years' experience; can do all manner of hive work or foundation, etc. Address
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Mirror, or Parti-scale Carp For Sale.

Spawners,	10 to 12 inches in length,	per doz.,	$6.00
"	8 to 10 " "	"	5.00
Small fish,	2 to 4 " "	100,	5.00

W. H. CARPENTER,
3-6db Springboro, Warren Co., Ohio.

NICE FOUNDATION, 35 CTS. PER LB.
W. T. LYONS, Decherd, Franklin Co., Tenn. 345d

Eggs, $1.25 PER 13, from pure-bred, single-comb Brown Leghorns. Unexcelled layers. Address H. B. GEER, Nashville, Tenn., or E. W. GEER, St. Mary's, Mo. 3-8db

LEGS AND ARMS
(ARTIFICIAL)
WITH RUBBER HANDS AND FEET.

The Most Natural, Comfortable and Durable.

THOUSANDS IN USE.

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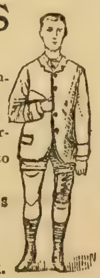

18-5b

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Bee-Keepers' Supplies.

NORTH - WESTERN CHAFF HIVES, 4 - PIECE SECTIONS DOVETAILED, FRAMES, HONEY-BOXES, ETC.

Address **R. SCHMIDT,**
2 6db **Caroline. Shawano Co., Wis.**

FOR SALE. Five pair fine Pekin ducks, at $4.00 per pair.
1tfdb D. D. FARNSWORTH, Clive, Polk Co., Iowa.

NOTICE.—For $3.00 I will mail direct the great scientific work by Frank Cheshire, entitled, "Bees, and Bee-Keeping," now publishing in parts.
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I. L. PARKER, TRACY CITY, GRUNDY CO., TENN.

IMPORTED QUEENS.

In April, - - - - - -	11 francs in gold.
May and June, - - - - -	10 " " "
July and August, - - - -	9 " " "
September and October, - - -	7 " " "

No order received for less than 8 queens. Queens which die in transit will be replaced only if sent back in a letter. CHARLES BIANCONCINI & CO.,
1-11d Bologna, Italy.

THE PRACTICAL BEE-HIVE, one of the best, L. frame, a complete hive, sent on recipt of $2.50. Bees, queens, and supplies; also Plymouth Rock and Brown Leghorn eggs, $1.50 per sitting. Address
T. G. ASHMEAD, Williamson, Wayne Co., N. Y.
3-5-7d.

BEE-HIVES,
One-Piece Sections, Section Cases, Frames, &c.,
OF SUPERIOR WORKMANSHIP, FROM
SMITH & GOODELL,
Manufacturers of and Dealers in
APIARIAN SUPPLIES,
ROCK FALLS, WHITESIDE CO., ILL.
3tfd *Send for Price List.*

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FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address

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APIARIAN SUPPLIES

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From Imported and selected mothers. Send for Sixth annual Circular. **SIMON P. RODDY,**

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DRONE & QUEEN TRAP.

Send 65c. and get sample by return mail.

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EASTERN BEE-HIVE FACTORY

Especially adapted for manufacturing a full line of

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Having fitted up with new machinery, designed and built expressly for this work, my facilities are unsurpassed for doing FINE AND ACCURATE WORKMANSHIP.

120

Full colonies of golden and orange colored, and American Albino Italian Bees for sale; were bred last season, ON PURPOSE to enable me MORE FULLY TO SUPPLY THE GREAT DEMAND.

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Nucleus colonies, bees by the pound, and choice queens. For full particulars and LOW PRICES, send for my ILLUSTRATED CATALOGUE and a sample of the celebrated poplar sections, free on application.

E. L. WESTCOTT,

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EARLY BEES AND QUEENS FOR SALE.

I can ship Colonies, Bees by the pound, and queens, early in spring. Prices on application. Address

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QUEENS, 1886. QUEENS.

Reared from Imported Mothers. Two, three, and four frame nuclei. Safe arrival and satisfaction guaranteed. Send for price list. Address

57911db FRANK A. EATON, BLUFFTON, OHIO.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

JOB LOT OF WIRE CLOTH

AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1½ CTS. PER SQUARE FT.

SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED.

This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and cages for shipping bees; making sieves for sifting seeds, etc.

Inches Wide.	No. of Rolls.	Number of Square Feet contained in each Roll Respectively.
10	1	1 roll of 72 s. f.
20	3	3 rolls of 166 s. f. each
22	1	1 roll of 160 s. f.
24	3	3 rolls of 200 s. f.
26	71	22 rolls of 217, 38 of 216, 2 of 195, 1 of 156, 2 of 215, 1 of 210 s. f.
28	13	10 rolls of 233, and 2 of 234, s. f.
34	7	5 rolls of 281 s. f.
38	37	28 rolls of 316, 2 of 285, 2 of 317, 1 each of 190, 632, 126, and 215 s. f.
42	1	1 roll of 245 s. f.
44	2	1 roll of 366, 1 of 348 s. f.
46	1	1 roll of 152 s. f.
48	4	4 rolls of 400 s. f.

FIRST QUALITY WIRE CLOTH AT 1¾ CTS. PER SQUARE FT.

The following is first quality, and is worth 1¾ cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1¾ cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

Inches Wide.	
22	1 roll each of 88, 143, 92 s. f.
24	43 rolls of 200 sq. ft. each; 1 each of 120, 168, 190, 40, 150, 140 140 sq. ft.
26	57 rolls of 216 sq. ft. each; 1 each of 199, 195, 201, 200, 227, 54, 204 sq. ft.
28	73 rolls of 233, 11 of 224, 3 of 219, 8 of 222, sq. ft.; 1 each of 70, 245, 257, 93 sq. ft.
30	36 rolls of 250 sq. ft.; 1 each of 137, 225, 125, 125, 220, 227, 237, 235, 275, 240 sq. ft.
32	13 of 266, 7 of 256, 2 of 253 sq. ft.; 1 each of 250, 275 sq. ft.
34	30 rolls of 283 sq. ft. each.
36	22 rolls of 300 sq. ft. each; 1 each of 288, 150, 279, 285, and 72 sq. ft.
38	1 roll each of 300 and 316 sq. ft.
40	1 roll of 233 square feet.
42	1 roll of 350 square feet.
46	1 roll of 192 square feet.

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

CLEVELAND.—*Honey.*—The honey market is very good just now for best 1-lb. white, at 14, with an occasional sale of a single crate at 15. Second grade, 13; 2-lb. sections, best white, 13c. Old, 10@11. Extracted, 7@8. *Beeswax*, 25. A. C. KENDEL,
Feb. 20, 1886. 115 Ontario St., Cleveland, Ohio.

CHICAGO.—*Honey.*—Choice comb honey is in good demand at 16c per pound. The best lots arriving here are from New York State and N. Ohio. Extracted sells from 6@8c, and in fair demand. *Beeswax*, 25@26c. All grades are wanted in this market at present. R. A. BURNETT,
Feb. 25, 1886. 161 S. Water St., Chicago, Ill.

DETROIT.—*Honey.*—No change in the honey market; very slow sales, at prices last quoted; viz., 14c for best white in pound sections, in clean cases. *Beeswax*, 23@25c. M. H. HUNT,
Feb. 22, 1886. Bell Branch, Mich.

BOSTON. — *Honey.* — 1-lb. sections, 13 @ 14; 2-lbs., 11@12; Slow sale. Extracted honey, 6@8. *Beeswax*, 28. BLAKE & RIPLEY,
Feb. 22, 1886. 57 Chatham St., Boston, Mass.

ST. LOUIS. — *Honey.* — We quote comb honey in better demand. Good bright stock, 12½c. Extracted, 8c in large cans; 9c in small cans. Case honey has good demand. *Beeswax* wanted at 23c.
Feb. 23, 1886. W. T. ANDERSON & CO.,
104 N. 3d Street, St. Louis, Mo.

MILWAUKEE. — *Honey.* — The demand for choice comb honey in sections has been much improved of late, and selling at 15@16c readily, and we think, if extra fine quality, could get 17c. We will quote 1-lb. sections, choice, 15@17. Dark honey very slow. 12@13. Extracted, scarce, and wanted, 7@8c; old comb, 12½@13. A. V. BISHOP,
Feb. 20, 1886. 142 W. Water St., Milwaukee, Wis.

NEW YORK.—*Honey.*—There is no remarkable change in the honey market. The demand keeps up as we expected, and before long all first class honey will be cleaned out.
Feb. 23, 1886. THURBER, WHYLAND & CO.,
Reade & Hudson Sts., New York.

KANSAS CITY.—*Honey.*—Sales are improving, and we have a good trade in comb, although prices are not as firm, owing to good prospects in California for a big crop, having reduced their prices about 2 cts. Choice comb, 1-lb. sections, 16; fair and dark, 12@14; 2-lb. sections, 12@14; extracted, dull and slow. Dark, 3½ to 4; white, 6@7. *Beeswax*, 23.
Feb. 22, 1886. CLEMONS, CLOON & CO.,
Cor. Fourth & Walnut St's, Kansas City, Mo.

CINCINNATI. — *Honey.* — There is no speculation whatever in the market, and demand is slow for extracted honey from manufacturers, while it is fair for honey in glass jars for table use. Demand for comb honey is slow, and the market is well supplied with all kinds. Extracted honey brings 4@8c on arrival, and choice comb honey brings 12@15c per lb. in a jobbing way. *Beeswax.* — There is a good home demand for beeswax, while arrivals are slow. We pay 25@27c per lb. for good yellow to choice, on arrival. CHAS. F. MUTH & SON,
S. E. Cor. Freeman and Central Avenues,
Feb. 24, 1886. Cincinnati, Ohio.

FOR SALE—1500 lbs. of white-clover and linn extracted honey, put up in new oak kegs, of 175 lbs. each, delivered on board cars here for 8c per lb.
F. W. HOLMES, Coopersville, Mich.

BEES & PLANTS.

20 stands of Italians at $5.00; and 20 stands of hybrids at $4.00 per stand, all in Simplicity hives of Root's pattern. Also pure Gregg, Cuthbert, and Turner raspberry-plants for sale at $1.00 per 100, or $8.00 per 1000. Address
567d **A. F. ROBINSON, Marysville, O.**

Y&.. WYANDOTTE FOWLS, ITALIAN BEES, QUEENS, and SUPPLIES. **BB**
Send for Price List.
W. H. OSBORNE, CHARDON, OHIO.
5-7-9db

RUBBER PRINTING-STAMPS

For bee-men; stamps of all kinds; send for catalogue and sample cuts printed on sections.
5 G. W. BERCAW, Berwick, Ohio.

SIMPLICITY BEE-HIVES, 42½ cts.; two-story Langstroth, 90 cts. Leconte pear-trees, 20 cts. each. Pecan duck eggs, 13 for $1.00.
5d THOS. A. GUNN, TULLAHOMA, TENN.

NOTICE THE LOW PRICES ON
Bees, Brood, Queens, Plants, Etc.,
IN MY NEW CIRCULAR. PLEASE WRITE FOR ONE.
C. WECKESSER,
5-7-9db **Marshallville, Wayne Co., Ohio.**

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Dovetailed, or to nail; planed, or smooth sawed. Any size made to order. Sure to please you, and sold at the lowest price for good sections. Send stamps for samples and prices, stating size and quantity wanted. Any size of frame made to order, and shipping-crates in season. 5-6-7d
F. GRANGER & SON, HARFORD MILLS, CORTLAND CO., N. Y.

100 Colonies of Bees for Sale!

My 650 colonies of bees are more than I can well handle, and I will sell 100 full colonies at $5.00 each for hybrids, $6.00 for pure Italians. Discount on larger numbers. I will also sell a few colonies of Caucasian bees, which breed I imported from the Caucasus Mountains, Asia, in 1880, and have found them of great value to me. Address
JULIUS HOFFMANN,
5-6-7d **Canajoharie, Mont. Co., N. Y.**
(Formerly Ft. Plain, N. Y.)

STANLEY'S AUTOMATIC
HONEY-EXTRACTOR

Is the most practical, complete, and perfect, and the only self-reversing honey-extractor made. They are a perfect protection to the combs, and are handy, durable, and cheap. I can now furnish them, either wholesale or retail, on short notice. Those wishing to handle them largely should get my price for the inside work and put up the machines to suit their customers. I will take a limited number of colonies of bees in exchange for extractors. The Automatic has never failed to take first prize wherever shown. Address 5d
G. W. STANLEY, Wyoming, N. Y.

SIMPLICITY & LANGSTROTH HIVES

All dovetailed Sections, Frames, Crates, Wire Nails, etc. Send for circular. **GEO. WHEELER,**
5tfdb **Norwich, Chenango Co., N. Y.**

Brown Leghorn Chickens,
PEA FOWLS,
AND WHITE GUINEA FOWLS
EGGS IN SEASON.

Send for descriptive catalogue and price list. 5d

EDWARD S. LEA,
Brighton, Montgomery Co., Md.

GLEANINGS
IN
BEE CULTURE.
DEVOTED TO BEES HONEY & HOME INTERESTS.

Vol. XIV. MARCH 1, 1886. No. 5.

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OUR OWN APIARY.

EXPERIMENTS WITH THE SOLAR WAX-EXTRACTOR IN THE MONTH OF FEBRUARY.

ABOUT the 12th day of February was beautiful balmy weather, during which time the outside temperature ranged about 50°. While strolling among the hives, listening to the happy hum of a few bees in the air, the thought came all once to me, Why not, with an out door temperature of 50°, make a test of the solar wax-extractor J. A. Green has just sent?* In response to the request made in GLEANINGS, he constructed this as he would have it, and forwarded the same to us. A moment later I could be seen tugging at a big brown box, wondering what could be done with it in a February sun. I soon had it in position—both the reflector and the tray itself, so as to give the best effect. I then placed, inside the extractor, a 15-cent thermometer in one corner, and some old scraps of comb. With bated breath I anxiously awaited the results. Inside the extractor, almost immediately, but slowly, the mercury began to rise very perceptibly; soon the thermometer indicated 100°. Scarcely imagining that it would go higher, I went away; and when I returned, shortly after, the temperature indicated was 155°.

"Whew!" thought I; "it can never get higher than that, this weather."

It is laid down in the text-books, that wax melts at about 145°. Sure enough, the wax in the extractor was now melting at a fair rate. Again I left; and when I came back, the tube of the thermometer was "clear up full," so that the mercury could rise no higher. The temperature thus indicated was 173°. It did not take me long to procure the best thermometer we had; but by the time I had put it in place of the cheaper one, the sky began to grow a little hazy, so that I could not determine what the results would have been.

While the temperature was up to 170°, as before stated, I remarked to father, who was otherwise occupied in his prepared garden soil, "The comb doesn't melt any more."

"Oh, yes," said he, on coming up, "it is all melted."

I took out a piece of comb (whew! it's hot!), and, sure enough, below the perforated metal were as beautiful yellow wax pellets as one ever saw; and all that remained of the comb now was the cocoons. In appearance, the comb was as perfect as before, though the wax was all, or nearly all, melted off. Of combs that were not more than a year old, scarcely any thing remained. For this reason, one is liable to be deceived and think that his solar wax-extractor is not working. If the combs were mashed up into balls, different results would doubtless be obtained, though I did not try it.

Surely, if the sun extractor will give tolerably fair results in this climate, no one will argue that they are not adapted to the colder climates in summer.

FRIEND GREEN'S EXTRACTOR WITH OUR MODIFICATIONS.

Our foreman of the lumber department constructed another like the one sent us, with a few slight changes. The modification consisted in using a single sheet of glass, instead of two, as in the one friend Green made; furthermore, in place of a looking-glass for a reflector, a sheet of bright tin was substituted, and the box was painted black so as to absorb as much light as possible, and, in consequence, a proportional amount of heat. The tin, if it would answer the purpose, would be preferable to the glass, as it would be less liable to be broken. One would suppose that these changes, instead of being improvements, would give inferior results; but a careful test of one as thus modified showed 180°. Facts seem to say, One sheet of glass is preferable to two, as any additional thickness of glass absorbs just so much more heat. For this reason, greenhouse men prefer only one thickness of glass. To illustrate further, I took friend Green's extractor into the greenhouse, where there was a summer temperature of 70°. In here, with a summer sun, as it were, I argued in my own mind that the wax-extractor ought to give the same results as if it were outdoors in a hot July day. To my astonishment the thermometer in the extractor, after it had been in the greenhouse for a short time, showed scarcely 170°—somewhat less than that indicated when the extractor was in the open air at a temperature of 50°. Now, while I think that two sheets of glass do not materially lessen the amount of heat, yet, as I see, there is no advantage in having two. The amount of heat lost in radiation from a single sheet is overbalanced by heat lost in absorbtion with two sheets of glass, as already stated.

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*A cut and description will appear in next GLEANINGS.

The bright tin for a reflector seems to answer every purpose of the looking-glass; besides being cheaper, it will not break.

THE UTILITY OF THESE WAX-EXTRACTORS; BOILING EGGS IN THE SUN.

You notice that we obtained, with the solar wax-extractor, 170 and 180 degrees when the temperature in the open air was only 50°. With a summer heat of 70° outside, if the temperature increases in the extractor proportionately, we ought at least to reach the boiling-point, 212°. According to this, J. A. Green's speculation of eggs boiled in the sun is not so impossible after all. Why, I declare I will coax the "queen clerk" to try her hand at *frying* eggs in the sun when the weather becomes suitable. What fun it would be to run opposition to gasoline stoves? "Steady, young man," some one says; "you are a little premature; besides, the boiling-point is not the frying-point."

"Oh! well, my good friend, if the eggs won't fry, I will say the foregoing is 'a scientific pleasantry,' and that it was Green's notion, not mine;" but, mark you, if the speculation should be a *success*, then I will try to claim a share in the idea; and with as much originality as possible I will say, "I told you so."

THE CONDITION OF OUR BEES UP TO DATE.

The Holy-Land colony that I mentioned on page 90, of this current volume, as being uneasy and showing signs of dysentery, is now dead. All the rest of the colonies are in good condition up to date; and as we have had quite a number of warm spells, they have been breeding quite heavily. The result is, that many have run short of stores, and will have to be given more combs of sealed honey, to prevent starving. I would suggest, as a caution to beginners, when these warm spells in March come, that they would do well to examine all stocks on their summer stands. If they have been breeding heavily as above, and their stores are low, feed them or give them sealed combs of honey.

A little caution now may save you a few colonies later. If the weather is such that the bees are not flying much, I don't think I would tinker with the colonies unless you have good reason to think that some particular swarm is running short of stores.

Two bad months are before us, and so we can't "count our chickens" yet. I will report later.

ERNEST R. ROOT.

USE OF THE THERMOMETER.

HOW IT MAY MISLEAD US IN USING IT IN A BEE-CELLAR.

IN talking about temperature, I want to premise that it is very doubtful if any one can lay down a fixed rule for temperature, that will be safe for all others to follow. If A has fixed upon 45° as the best temperature for his cellar, B may have his bees in different hives, or packed differently, so that, if put in A's cellar, it would be better to have the temperature above or below 45°. Smith and Jones may have their bees exactly alike as to hives and packing, both in equally good condition. Smith says he keeps his at 40°; Jones, at 50°. But the same thermometer, placed alternately in each of the cellars, on one of the central hives, shows that the bees in both cellars are kept at exactly the same temperature. Smith has his thermometer hanging in the coldest spot in his cellar; Jones, in the warmest. Or, the difference may be mainly due to a difference in thermometers, for I have noted a difference of 7 degrees in a lot of thermometers hanging in the same spot in a drugstore.

Of course, it is of value to get the experience of others; but each one must decide for himself at what point his bees keep best, and then, with the same thermometer always hanging in the same place, try to hold steadily at that point.

WARMING AND VENTILATION.

The same means used for warming may aid in ventilation, so the two may well be considered together. In my shop cellar there is no special provision made for ventilation, excepting that a 4-inch stove-pipe runs up through the floor. I don't cite this because I think it's right, but I want to work from facts, and, moreover, there are many who may want to know what to do with just such cellars. The cellar is 18 by 24, on a side hill; a large double door, or, rather, two doors with a 9½-inch air-space between them, leading out on the level on the south side; a small window with double shutters on the west, and one on the east side, and a trap-door overhead. November 10, 124 colonies were put in the cellar. In a few days the bees appeared somewhat uneasy; there was a close, disagreeable smell, and mold was found in spots over the earth floor. A wood fire made in the cellar helped matters, drying it off, and of course the warmer the air the better the ventilation. The heat, however, was very unsteady, and at night the fire would die out entirely, the exit for the air being greatly lessened by the closed stove, and in the morning the thermometer would be down.

About the middle of December I determined on more radical measures. I put in the middle of the cellar a common small cylinder stove for anthracite coal, the inside diameter between the fire-bricks being a little more than eight inches (I also put two in the house cellar). In this I have kept a constant fire, day and night. It makes a steady heat, so little light that I think it does no harm; and the stove-door being always open, makes the best exit for air. The mold has disappeared, the air always smells sweet, and at this writing the bees appear quiet, and are doing nicely. Of course, there is time for them all to die between now and May.

In ordinary weather I find it best to keep the trap-door wide open, the room overhead being darkened; but in very cold weather, every thing is kept shut tight. Once or twice, with the mercury outside below zero, and a strong wind, the cellar has been as low as 36°. With close attention it might have been kept above this. During the last of December we had a warm spell, the outside air going above 40°. At this time I kept doors and windows open at night, and sometimes through the day; but the coal fire was kept steadily going, because, if not needed for heat, it was for ventilation. The hardest time I have found to keep bees quiet has been toward spring, in a cloudy, rainy, damp, warm time. The damp air is so light that it does not, by its weight, force its way into the cellar, and the cellar becomes foul. At such a time, would not a fire in the cellar, even though the bees were already warm enough, make the cellar air lighter, so that the outside air would take its place? My observation leads me toward that belief. A serious objection to heating cellars in this way is the expense and constant care. But where a large number are kept, it may be money and time profitably spent, if thereby the dead-list may be shortened. What I should especially like, however, is some arrangement by which the bees could be placed in the cellar in the fall, and left without any attention till time to take them out in the spring. I have been experimenting a little, and thinking a great deal about sub-ventilation, and had intended to write about it when I commenced this article; but I see I must wait until another time. How do Ira Barber and others keep their cellars so warm? Two of my colonies have starved to death. Poor management!

C. C. MILLER, 179—338.

Marengo, Ill., Feb. 20, 1886.

Friend M., I grant all your points except the ones about the thermometers in the drugstore. If they varied seven degrees, they were a poor lot and ought to have been returned to the maker. Perhaps it was only one or two that were so far out of the mark. In that case I should say they were "out of kilter." See the instructions we give in regard to the use of thermometers, on the one we mail you to-day. And, by the way, it would be an excellent way to test the thermometers, to ask the dealer to show you a dozen. Lay them side by side on the counter; and if they don't all tell the same story within at least two degrees—well, I don't know what would be best to do. Perhaps the charitable way would be to tell him to show you a dozen higher-priced ones; and if the higher-priced ones don't tell the truth better, then I would complain.—It seems to me that keeping a fire all winter long is very expensive business, and I would try to make some automatic arrangement. A reservoir of water warmed up once a day would do it to a dot, if it didn't keep the air too damp; and I am inclined to think that the dampness would do good and not harm. What say you? During this past winter, a reservoir holding perhaps 20 barrels of water, right in the center of our greenhouse, has kept the temperature just as nice as could be, with nothing but sheets of glass intervening between the outdoor air that was 15 degrees below zero. We have not had to get up nights once.

OVERSTOCKING A LOCALITY.

ALSO SOMETHING FROM FRIEND HEDDON IN REGARD TO SUGAR STORES COMPARED WITH NATURAL STORES.

I FEEL that I should publicly thank Prof. Cook for his kind words and friendly criticism, found on page 98. I may as well say it now, even if the Professor does see it, that all through our numerous discussions of subjects upon which we could not agree, I have been compelled to esteem his integrity and judgment as the very highest. I always wish and sometimes dare to hope, that the Professor's opinions regarding "swelling our ranks" are correct; and, as he says in closing his review, that I am "morbid" upon that question, but as yet I can not find the evidence to believe with him as I desire.

I wish it were true that we might multiply the number of honey-producers tenfold; but however much I may desire this, I can not believe that much more increase in our ranks can take place without a suffering on the part of those already engaged. I think I have had letters from five old stalwart producers, in which they have especially complimented the part of the little book that friend Cook believes is over anxiously mistaken.

Another point that seems strange to me is, that some of our bee-keepers, among whom I may mention friend Wright, on the same page, who have never expressed the least fear regarding increasing our product by the increase of producers, are now frightened because some who believe that sugar syrup is superior to honey for winter stores are feeding said syrup, thus causing an increase in the honey supply. Surely, these men must agree with me rather than the Professor regarding the point in question. I think Mr. Wright makes a true statement when he tells us that the sugar we feed increases the market supply of honey, pound for pound, and that the relation between supply and demand governs prices, which means our success or failure.

But right here I think Mr. Wright's argument ends. I know it is natural for any honey-producer to feel just as Mr. Wright does, when he sees his products begging for consumers at a price below cane sugar; and no wonder that his judgment tells him that, before we feed our colonies the higher-priced sugar to take the place of the lower-priced honey, we had better let at least a portion of them die. Such reports as this of Brother Wright's (and they are more numerous than I wish they were) prevent me from believing with friend Cook, however much I may desire. I have bought, sold, and produced comb and extracted honey in a retail, jobbing, and wholesale way, for nearly eighteen years, twelve of which my father has been a wholesale commercial agent, all of which has given me some advantages in gaining a knowledge of the several points made in Mr. Wright's article, and I will give you my opinion regarding a few of them, to be taken for just what it may be considered worth.

First, the cry of "adulteration" has very little tendency to deter purchases of our product. A commodity will usually sell upon its merits, judged by its looks, flavor, and effect. We well remember the wholesale war made against glucose in sugar syrups—how refiners started the cry, which echoed in all the papers of the land; a tumult, compared with which all that has been said regarding adulterated honey might truly be called a faint whisper; and yet you will find, if you take the pains to ascertain, that ever since that time the consumption of commercial syrups has steadily increased. When I began using the extractor, years ago, liquid honey was so novel a thing that its lower price at once gave the impression that "it *must* be adulterated." That was the cry; and the echo of that noise has not died out yet, though I verily believe that it has had no effect in lowering the price nor demand for my honey.

Let us consider the final outcome of "sugar-feeding for winter." Whatever may be true collectively, will not each individual decide the matter for himself? and will that decision not be governed by what he believes to be the best? After making several quite extensive experiments, and talking with others who have done likewise, I am compelled to believe that pure cane-sugar syrup is better than any honey for bees during their period of confinement. If I find that, after all, I am mistaken in this, I shall be eager to announce my discovery, and rejoice that our excellent product is excellent *everywhere.* But let me assure you that it will require something more than desire, or glutted honey markets, to change the opinion that has been compelled by what seems to me to be positive proof. Bee-diarrhea is the condition to be dreaded. It may be called the one cause of our winter troubles. It results from an excessive accumulation of fecal matter. I never saw, and never saw a man who had seen bees that had been confined three months or more upon any kind of natural stores that did not discharge fecal accumulations on their first flight. I confined over 70 colonies for 151 days (five months), at the end of which they flew, with bodies apparently as slim as in autumn, discharg ingnothing, not even water, as far as careful scrutiny could detect. These colonies passed the winter in a cold cellar, where three-fourths of those with natural stores died with bee-diarrhea. Their stores consisted of pure cane-sugar syrup, there not being one drop of honey, or bit of bee-bread, in the combs. I do not think this can be done with natural stores; but if we can bring our bees through their longest periods of confinement upon natural stores, without their accumulating sufficient fecal matter to produce disease, provided we make all other conditions favorable, then I believe that natural stores will finally be our choice. That this can be done, and is done year after year, we have ample evidence; but I doubt that it can be done in all localities, especially my own.

I am giving the matter a critical test this winter; and though I should rejoice to know that the natural stores of my location are safe, one year with another, with all other conditions favorable, yet if I find they are not, I shall also rejoice in the fact that we can give them syrup at the rate of 1000 lbs. per hour (all of which will be taken down within about 24 hours), and that, too, without having to extract any natural stores. JAMES HEDDON.

Dowagiac, Mich.

Friend H., I think it is true that there are some localities somewhat overstocked; but at the same time, there are thousands upon thousands of localities that are not stocked at all, so to speak; therefore let us scatter ourselves, and take up the waste places.—In regard to sugar syrup in place of natural stores, there is one point I forgot to mention, and I tell you it is a grave one. If you go to buying cheap honey to use in lieu of sugar stores, you not only stand a good chance of getting honey that will give the bees dysentery, but you may also give them foul brood; whereas if you go to your grocer and get a barrel of granulated sugar, there is no possibility of any such event. In fact, the sugar feed would go a great way toward banishing the foul brood, after having let the bees consume all the honey. I told you, a month or two ago, that honey was being put upon the market for sale that was extracted from apiaries terribly infested with foul brood. Suppose a bee-keeper gets hold of some of this, and feeds it instead of sugar for winter. Read the following, ye who go on so about sugar feeding:

> You published a piece showing that foul brood was not contagious, and at the bottom consented to it yourself. Well, my neighbor bought foul-brood honey in Cincinnati, and he lost about 40 colonies, and spread it in two of my apiaries. My loss was 12 colonies. The amount of loss in other apiaries is considerable. That much for the diabolical publications. I know several cases of its being contagious. W. F.
>
> Feb. 20, 1886.

I can give the name and address of the writer of the above, if need be, but I think perhaps he wouldn't care to have it published, for he will doubtless set to work and get the foul brood out at once. I need not tell you, that I wrote to him, asking where anybody ever said that foul brood is not contagious, but I have not yet received his reply.

NOTES AND QUERIES.

CONTRACTING BROOD-NEST.

FRIEND Doolittle and others advocate contracting the brood-nest to get section honey. Do they contract the honey-board to the size of the brood-nest, or cover the size of the hive with sections? WM. G. NORTON.

Honeoye Falls, N. Y.

[We believe friend Doolittle practices reducing the room above the cluster by division-boards, whenever the size of the colony makes it necessary, the same way that he contracts the size of the brood-nest.]

THE HONEY PROSPECT IN CALIFORNIA.

The prospects for a honey crop the coming season were never better. Vegetation is unbounded. R. WILKIN.

San Buenaventura, Cal., Feb. 18, 1886.

A DEPTH OF 125 FEET SHOWS 50°.

There being a desire to know the temperature of the earth at different depths from the earth's surface, I made a test of my well, which is 120 feet in depth, made by boring, and inserting a two-inch pipe. The water is drawn by wind power. I let it pump until I was sure the water came from the bottom, then I put a thermometer in a pail and let it pump on it; the mercury stood at fifty degrees above zero. T. S. BULL.

Valparaiso, Ind., Jan. 28, 1886.

WIDE FRAMES AND SEPARATORS.

ARE THEY A CONVENIENCE OR A NUISANCE?

When you said, Mr. Editor, in Gleanings for Jan. 15, page 45, "It is a little amusing to see friend Heddon go back and declare in favor of wide frames, and *separators* also, after the way he has denounced both," I said to myself, "Good! for this will cause Bro. Heddon to explain to us in what manner he has been enabled to overcome the difficulties he once found in the use of them, which was so great that he discarded wide frames, and denounced separators as 'nuisances.'" After thus thinking, imagine my surprise to find W. Z. Hutchinson writing on page 87 of Gleanings, "Can you show, friend Root, where he (Heddon) has harshly denounced wide frames or separators?" and saying, after a search through numerous back volumes of the bee-papers, "I can not find that Mr. Heddon has ever denounced separators."

Well, thought I, can it be that I am so much mistaken? for it can not be that a man who has championed another, as Bro. Hutchinson has friend Heddon, can not know whereof he speaks. It was but the work of a moment for me to turn to page 33 of the *A. B. J.* for 1881, where I find recorded, under the name of James Heddon, these words:

"Separators cost me too great a portion of my surplus crop, to say nothing of their *first* cost and trouble of manipulating."

On page 66 of same volume I find this:

"Separators are better adapted to some supply-dealer who can 'grind' his ax with them" (than for raising comb honey, I suppose is to be inferred).

Again, on page 75, *A. B. J.* for 1881, I read:

"All separators are a great drawback to the production of comb honey."

Then on page 106, these words appear:

"If it is strange that I should declare against the use of *all* separators," etc.; while on page 170 of same volume he says:

"Yes, it is true that we do not need to attach any costly and complicated contrivances (separators) to make our *chosen surplus system* work to our *perfect satisfaction*." (Italics mine in this individual case). By again referring to page 33, I read:

"There is no need of the nuisances called separators," which I am sure is a *harsh denunciation*, if none of the rest can be so construed.

What think you, Bro. Hutchinson? Now, I have not written this altogether to prove that Bro. Hutchinson made a mistake, and that friend Root was right, but mainly for the purpose of drawing Bro. Heddon out, so that he will tell us wherein he has remedied the defective system of separators, so that he has gone from the calling of them "nuisances," to using and recommending them to others. If, as he says, they cost him "too great a portion of his surplus crop," how has he brought it about so that now they cost him none of it? and if "all separators are a great drawback to the production of comb honey," what special plans has he adopted regarding separators, so that this drawback has been overcome? These questions are of vital importance to us; and if Bro. Heddon has no secrets in the matter we should like to have him explain. I have always used separators in the same way Bro. H. now does in his new hive, and called them a convenience rather than a "nuisance;" and if there is any knowledge to be gained whereby I can add to my crop of surplus honey, I am interested to gain it. Now about wide frames.

On page 170 of *A. B. J.* for 1881, Bro. Heddon says, "The reason I discarded the broad (wide) frame system was because the sections were so stuck up with propolis;" while on page 100 of present volume of Gleanings he says, "I was driven from their (wide frames) use, as well as the hundreds who went with me, from our experience with them in two-story supers." Now, Bro. H., which of these reasons is right? If the latter, you have told us how you overcome the objection to "two-story supers;" but if the former, you have not told us how you overcame the propolis question. Of course, you have in some way, for this propolis question has been raging for years, and I am sure you would not leave your case system, which was so *free from propolis*, and go to using the wide-frame system, without overcoming this defect. Propolis on sections is a nuisance, be the same little or much; and a plan which will allow of the filling of the sections with nice comb honey, without changing the clean appearance which they present when placed upon the hive, will be heralded with delight by all, and give great honor to him who works out the plan. Surely none of us can object to any one changing his plans as often as occasion requires; but in doing so it is well to say that previous views were mistaken ones, or else give to the public how our former objections have been overcome. When friend Betsinger invented wide frames in connection with separators, to be used one tier high, he gave us one of the greatest conveniences regarding the production of comb honey; and Bro. Heddon's going back to these is one of the best parts to his new system of management. G. M. Doolittle.

Borodino, N. Y., Feb. 13, 1886.

SOMETHING FURTHER ON THE TEMPERANCE QUESTION.

IS LICENSE OR TAXATION TO BE CONSIDERED AT ALL?

If you have no objections, I will offer a few words in reply to Prof. Cook, on page 47. He says: "Why will not a law like that adopted in some of the States suit all, do more good, and get the support of all temperance people? That is, a license with a heavy fee in conjunction, with local option in every *town*, *village*, or *city* where it can be carried?"

A right to grant a license implies a right to withhold it; hence a license law which does not compel the granting of licenses is in effect a local-option law. Whether the option should be exercised by States, by counties, or by towns, is the question. Prof. Cook says by *towns*, *villages*, and *cities*, and for a high price. This is just what we have now, and have always had in Wisconsin. But this is far from being a model temperance State, though the price of a license is not less than two hundred dollars. The amount paid is a direct *bribe* paid to the village for the privilege of cursing the community.

Our village of M. has about 1000 inhabitants. It collects for liquor-licenses, two thousand dollars annually; four-fifths of that amount is paid into the village treasury through the saloons by the surrounding agricultural towns. In return for this, the agricultural interests are taxed to support the paupers and prosecute the criminals, made such by this worse than useless traffic. If this monstrous evil must be licensed, I insist that all income from such licenses should be paid over to the county, and applied to the support of the poor or the prosecution of criminals. If all license fees were paid into the county treasury it would take away from villages the chief inducements to grant licenses. If we had local option by counties instead of by towns, many counties would prohibit, and, step by step, prohibition might be accomplished everywhere.

I have great respect for Prof. Cook and his many valuable articles on other subjects; and if he had not asked the influence of GLEANINGS for his plan, I would not have tried to state mine. Nothing short of total prohibition will satisfy me.

Mauston, Wis., Feb., 1886. F. WILCOX.

Now, friends, I think we shall have to let the matter of temperance rest where it is for the present. I am sure the readers of GLEANINGS are all in favor of stopping the liquor-traffic; and although we may differ widely in regard to the means to be employed, can we not hold ourselves, all of us, in readiness to push ahead wherever God seems to point the way?

CHAFF HIVES WITH ONLY EIGHT FRAMES INSTEAD OF TEN.

WHAT THICKNESS OF PACKING IS NECESSARY, ETC.?

WHY not make chaff hives to take eight frames instead of ten, somewhat after the Falcon style? Use a Simplicity hive if you want sections in wide frames; but I think cases will take the lead for holding sections. Have the hive tall enough, with the cover, to hold two or three sets of $4\frac{1}{4}$ sections. We could have the ends of hive permanently chaff-packed, and one side too, if that would be best. There are some points in the Falcon hive that I think would suit me better than the Simplicity chaff hive; but I think both of them are too large. I think six L. combs are enough to winter any ordinary colony of bees on; and then if we had eight-frame hives we should have enough combs to take care of.

I can't see the use in having a hive as large as the Simplicity chaff hive. I understand they have only three inches of chaff. Now, if we have three or four inches of chaff at the sides, and nine inches for the combs to winter the bees in, we should not have such a very large hive. Then have one side of the packing, or both, for that matter, movable, to put in the other two or more combs in the spring, or as they are needed. I have made up my mind that chaff hives are the cheapest in the long run, for this country, though I have had very good success wintering in the Simplicity (my style) for several years. Last winter I lost by starvation, dysentery, and queenlessness, 7 colonies out of 26, and that was by far the heaviest loss I ever had. I should think two inches of chaff would be enough for the ends of the hive, and three or four at the sides.

I have three colonies of bees in Simplicity chaff hives. I just put them in this fall, therefore I am not prepared to say how I shall like them. I am thinking of making chaff hives for next year, but am at a stand about what to get. J. S. WILLARD.

Bedford, Taylor Co., Iowa, Dec. 30, 1885.

Friend W., an eight-frame chaff hive would answer nicely, without doubt; but it would be making another style of hives for our catalogues and price lists, for it wouldn't work with the implements and appliances already in use for the ten-frame hives, and would in many respects complicate matters more than they are already complicated. Your bees would also be more liable to starve, if you make the brood-nest smaller. I think it will be far better to use division-boards to reduce the space at such seasons of the year as we wish the space reduced.

SOLAR WAX-EXTRACTORS.

PREVENTING AFTER-SWARMS, ETC.

I SEE on page 776, Nov. 15, 1885, you ask how many of the friends have used the solar wax-extractor. I have one I made this summer. It is a box 20 in. wide by 30 long by 12 deep. I put a false bottom in the middle, about 24 in. long. I got a sheet of tin 20×28, cut off two corners of the tin at an angle, then turned up the edge one inch all around, except the two inches in the center of the lower end; nailed a rim around one end and the sides of the box, with two saw-cuts about $\frac{3}{4}$ in. apart, and slipped in, from the open end, two lights of glass, 20×30, or lights 15×20; then close up the end, putting in a pan on the bottom. Your wax on the tin now drips on the raised bottom. Set it on the south side of the house, inclined to give what slant you want, and in a very short time, with the outside heat up to about 70° (I think it was) the wax will all be melted. You want to look out and not take out some of the refuse with your fingers, or you may shake them as badly as I did. If I were to make another one I would make the sides flaring; and would not a black iron dripping-pan draw more heat in there than the bright tin? You want the thing made so no current of air can pass through. It makes the nicest wax I ever saw.

Our honey crop out this way is very slim this year—only 660 lbs. from about 30 colonies in spring, and a little more than that of extracted. I like the Heddon way of preventing after-swarms, first-rate.

SOME QUESTIONS IN REGARD TO THE CARE OF STEAM-ENGINES.

I want to know if a steam-engine and boiler corrode, rust out, and become worthless, about as quick if it is not used more than two or three months in the year, as it would if it were used and cared for properly the whole time? What causes the boiler to explode when the water gets too low? Is there any book on the engine, telling how to run and take care of them? V. W. KEENEY.

Shirland, Ill., Nov. 23, 1885.

Friend K., we like the solar wax-extractor too, and I was greatly astonished to find that the heat of the sun was ample, even in the middle of February, and we made some of the nicest wax with it that I have ever seen. There is no trouble in getting heat enough. Perhaps a pan made of black iron might do better than a tin one. We will try to test the matter by experiment.—It depends upon who runs the engine. If it were properly fixed to lie idle, I think I should prefer to have it so; but if it were dropped right where it was last used, and no pains taken to prevent rust and damage, I would rather have it in constant use. If I am correct, letting the water get low does not cause the boiler to *explode*. It does. however, draw the flues out of shape, and cause the boiler to be sure to explode, if the engineer is so thoughtless as to pump water into it when red-hot. If, however, he finds he has by accident boiled all the water out, and heated the flues red-hot, he can just let the fires go down, and no harm is done. When the flues get cold, he may even go on with his work, if the boiler does not leak so badly as to put the fire out. Explosions are generally caused by pumping water on to red-hot flues. This results in making a great volume of steam so suddenly that the safety-valve is entirely inadequate to carry it off, so that everything is blown to pieces with an explosion. I do not know of any book on the care of the steam-engine—at least, nothing up to modern times. If any of our readers know of such a work, I should be glad to put it in our book list.

EGG-LAYING OF QUEENS.

IS IT THE BEES OR THE QUEENS, OR THE SIZE OF THE CELLS THAT DETERMINES THE SEX?

I READ with much interest the able article from the pen of Mr. Chas. Dadant, as I always do any thing from him. Mr. Dadant's statement, that the use of worker comb, or worker foundation, almost wholly precludes the deposition of drone-eggs, and therefore the presence of drone-brood, is certainly a thoroughly well-established fact, and is one of the strong arguments in favor of the use of foundation. Yet, does this fact necessarily lead to Mr. Dadant's conclusion, "A queen in good health lays drone-eggs in drone-cells, because they are greater; and worker-eggs in worker-cells, because they are smaller"? If, as I think, the queen knows what she is about, and acts from volition, then surely she would not lay the unfecundated egg in a cell that would restrict the size and full development of the drones, or male bees. I think the queen knows the large cells are for drones, and will lay the unfecundated eggs in no other, except by mistake. The fact as I gave it before, that very short worker-cells, hardly deeper than those of our best foundation, sometimes receive eggs that develop into workers, as no doubt Mr. Dadant has witnessed, is very significant; and can any one doubt, after examination, that the queen lays the egg in the queen-cells? But, if any other proof were needed we have it at our command: In some species, like *A. Indica*, the drones are smaller than the workers; while in wasps, like *Vespa vulgaris*, the cells are all equally large; yet the whole life economy of the *Vespa* and *Apis* genera, so far as reproduction is concerned, are identical. Our ants, too, closely related to bees in many respects, produce males and females in the same manner as do bees, and their eggs are not placed in cells at all.

Mr. Dadant's point, that the reason why young queens lay some drone-eggs in worker-cells is because the queen is small, and so her abdomen is not compressed, would surely have weight if it stood alone. Yet, were this the case I should suppose there would be more drones. They are usually very few and scattering. In my apiary I have once in a while had a very small queen, hardly larger, though slimmer, than a common worker, even in her most fecund days; yet her eggs in worker-cells produced workers. Has not Mr. Dadant noticed the same? So I still think these young queens at first fail to manage adroitly the muscular machinery that extrudes the sperm-cells from the spermatheca.

Mr. Dadant's conclusions as to wasps are not warranted, I think. The wasps that Sir John Lubbock referred to are our mud-wasps, not our paper-making wasps. These mud-wasps do vary the size of the cells—those containing the males being the smaller. So the point Mr. Dadant makes is hardly warranted, I think, by the facts in the case.

Do animals drop eggs at just such a time, irrespective of surroundings? I doubt it. Some of our birds that usually lay only five eggs will continue to lay as many as thirty, if we keep taking the egg from the nest. Thus, a flicker, *Colaptes auratus*, laid over thirty under these circumstances, here on our college campus.

From all these facts, I still think the queen knows what she is about, and that fecundation of the egg is voluntary, not automatic.

I wish to express my pleasure, that Messrs. Dadant & Son are revising Mr. Langstroth's book. I think he could not have chosen more wisely.

Agricultural College, Mich. A. J. COOK.

Friends Cook and Dadant, may I now put in a thought which I believe neither of you have touched upon? It is this: That the worker-bees are a factor, as well as the queen, in deciding whether they will raise drones or workers. You may remember, that some years ago there was a discussion in regard to the swarming impulse. Does the queen lead out the swarm, or do the bees? Several brought forth very clear facts to show that it was the queen that went out, and that the bees followed her. Others brought equally plain facts to show that the bees got up the excitement and poured out of the hive, and finally the queen joined in and went with them. But we were finally forced to conclude that it was sometimes the one and sometimes the other; or, most likely, the queen and bees both acting in perfect harmony.—Now for A. I. Root's theory about determining the sex. I suggest that the bees have the power, at least very largely, in their own hands, so to speak. I have tried in vain to get early drones, by placing the drone-comb in the center of the brood-nest. The queen would not occupy these drone-cells until other queens in other hives began rearing drones also. If I fed the colony, the bees used this drone-comb for storing honey; and it has just occurred to me that the queen didn't lay any eggs in the drone-comb, because the bees did not fix the cells, and invite her to occupy them. Is it not true, that a queen never occupies any cell, drone or worker, until the bees first clean it out, varnish it over, and give it that fresh, inviting appearance, with which we are all so familiar? Are we sure that they do not say by actions, if not by words, "When your highness gets that little patch of comb filled, please come over here and take these next"? Who has not tried to get a queen to fill combs when the cluster of bees was so small they couldn't get cells ready for her fast enough? She would fill all the cells that were properly prepared, and then, instead of going over to those nice clean worker-cells the bees hadn't glossed over and puttered with, would either stand around idly, or else go over the cells again, where she had just deposited eggs, putting two or more in a cell, and worrying the owner so much that he would be prompted to write a letter to A. I. Root about it, and ask if he hadn't better pinch her head off, when the queen was just as good a queen as could be, with only a pound of bees or a little more.

"THE OTHER SIDE" OF FLORIDA.

TWELVE MONTHS IN FLORIDA.

I SEE you publish a great many letters in favor of Florida. I send you a letter I got from the Charlottesville *Chronicle*. It looks at Florida on "the other side." HARRY GRIFFIN.

Charlottesville, Va., Jan. 7, 1886.

Editor Chronicle: — Hearing that a good many citizens of this section are considering the expediency of emigrating to the "Land of Flowers," probably persuaded thereto by the flowery pamphlets and maps so industriously circulated by the railroad and land companies; and, actuated by a desire to save those contemplating such a step from the disappointment almost sure to result, I send you the substance of some notes taken "on the spot."

In the first place, the much-lauded climate is a most unmitigated fraud—to a native of Piedmont, Virginia. Thermometers are "no good" there. They lie winter and summer. It is more disagreeably cold when 32° F. is indicated than when the mercury falls to zero here; and the almost vertical rays of the midsummer sun are so intensely hot and so thoroughly enervating that the most energetic man becomes willing to do nothing but pine for his mountain home again. My observation is that they embrace the first opportunity of getting out of a Florida summer, devoutly promising themselves not to be caught again. The thermometer may not indicate more than 90° F. when it oppresses one as much as 105° F. here.

The soil, in the greater portion of the State, is no soil at all, but a vast sand-bank, with a slight admixture of humus, which is exhausted by a crop or two. It is necessary to fertilize well every year to obtain a good crop. Frequent wide expanses of swamp and thousands of bogs and ponds detract from the value, and add nothing to the beauty of the country. While there are some fair lands, termed "hammocks," they are generally so infested with insects, and so unhealthy, that it is unwise to live near them. *Lovely*, they certainly are, with each twig and limb fringed with Spanish moss, which often droops many feet and gracefully sweeps to every breeze. But, amidst the tropical beauties of the scene, malaria insidiously lurks, ready to seize upon the casual intruder upon his native haunts. Except the veritable hills, the whole State lies *under water* during the rainy season.

As to products: Nearly every one who goes to Florida has the *orange craze*, and forthwith falls a prey to one of the legion of land agents, who will often palm off on the innocent an admirable location—for a duck farm! Every one is saving orange seed, planting orange seed, setting out orange-groves, millions and tens of millions of orange-trees! While many will die from frost or some mismanagement, yet it is patent that the business is overdone, and the profit in orange groves falls to the land speculator who sells off "choice" (?) lots at ridiculously fancy prices.

The lemon, being more easily killed by frost than the orange, can be profitably grown in few localities in the State; for the "line of no frost," so much dwelt upon in the effusions of general passenger agents, must be set down as a bare myth, frost being seen and *felt* in all parts of the State. In the more southern sections, pineapples, bananas, Japan persimmons, cocoanuts, are being profitably raised. But those who go to those parts must expect to see mosquitos by the quintillions, and carry a trunk full of quinine to ward off chills.

Market gardening, now rapidly assuming large proportions, is *the* future business of Florida. The lands require heavy fertilizing, and the crops are occasionally nipped by those "unheard of" frosts, yet the early products bring such fabulous prices that the business is, beyond doubt, the most promising in the State.

In conclusion, while money can be and is made in the ways mentioned, the intending emigrant from Piedmont, Virginia, should remember that he will have to contend against such ills and pests — unknown here—as will try his patient soul though he be a very Job. As surely as he tries orange-growing in Florida, he will concede that, if the same attention were given our pippin-orchards as is necessary to be paid to orange-groves, the pippin-orchards would be the more profitable. And as surely as he spends a year in that much-boomed sand-bank will he further concede that he was a fool to leave this goodly heritage of land and clime, and be ready to swear that, if Fate kindly permits him once more to see his "own, his native land," he will never, *no, never*! NO, NEVER! seek "Eldorado"—"Land of Flowers!" or thirst for the "Fountain of Eternal Youth." JAY C. ELL.

Why, friend G., I do not think the letter is such a bad one, after all. It is probably a very fair and candid statement of the way the average Northern citizen would look at things when there. And there is one point I want to call special attention to. If the same attention were given to our pippin-orchards right close about us, that they are obliged to give orange-groves in Florida, to get even an average crop, what sort of pippins should we have? Friend Cole, in his book, tells what the effect was on an old worthless apple-tree on a hillside by giving the ground around it (and under it) intelligent culture.

A WHOLE APIARY OF HIVES WITHOUT BOTTOM-BOARDS.

IS IT NOT AN ADVANTAGE TO USE HIVES WITHOUT BOTTOM-BOARDS?

IN GLEANINGS, Nov. 15, page 793, I notice where you say a hive which Conrad Weckesser mentions is a novelty. Now, I wish to state that one of the most successful box-hive men I have ever heard of in Texas does not use a bottom-board at all, and he keeps from 60 to 100 colonies of bees all the time, and has kept them for years. His name is J. M. Bell, of Winnton, Gonzales Co., Texas. He simply places a block about 2 inches square and an inch thick under each corner, to keep the hive from settling into the ground in wet weather. In wintering he moves the hive about its width to one side (so as to get a clean place, and get all trash that may have accumulated during the summer, outside the hive), and banks the earth up to the hive all around, leaving for a winter entrance two ¾-inch auger-holes, previously bored into the hive about 3 inches from the bottom edge of the box. I tried some box hives myself the last season, and I find that if the hive is open on all sides underneath, that the bees seldom lie out in our warmest weather (and I assure you we have weather warm enough to melt beeswax, and make it run like oil). I am going to try a lot of Simplicity bodies, without bottom, in the way mentioned above, the coming season, as it will be quite a saving in the way of labor and material, if we can get along without a bottom-board. Of course, this plan will work well only on a sandy slope where the ground will drain and keep washed clean. I happen to own just such a place, so you see I am favorably located for the experiment. I will report to

GLEANINGS in due time the result of my experiments, when you will be able to judge for yourself whether the plan is a good one or not.

REVERSIBLE FRAMES.

Speaking of reversible hives, page 771, Nov. 15, why not use the Quinby closed-end frame, and use no outside shell at all for the hive, but simply fasten the required number of frames together with a clamp, and when you want to reverse just turn the whole thing bottom up? M. BROERS, 20.

Gonzales, Texas.

Friend B., instead of having the whole bottom of the hive open, I would suggest that it be contracted; and if this contraction be done so as to make a sort of hopper below, at the same time it lets in the air, it will tumble out all the dead bees that drop down from any of the combs. When I first invented the Simplicity hive, I suggested that they could be set on four half-bricks, without any bottom-board; bank up the sides to keep out robbers, and to keep out too much of a draft of air when the weather is cold. I have had very good success with working hives in the summer with nothing but the ground for a bottom.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER III.

FAMILY TALKS ON BEES, CONTINUED.

ANOTHER day at dinner, Mr. Meek said: "If your bees live until spring, and then swarm, hives will be needed in which to hive your swarms. It is now an important question to decide what kind of a hive you will adopt. Bee-keepers tell me it is a great advantage to have all the hives in an apiary of exactly the same size and pattern, and to use on all the same kind of fixtures for obtaining honey. It is very annoying to the keeper of a large apiary to have a great variety of hives and fixtures. I would merely say, that now, as you are making a beginning, be sure you make a *right* beginning."

Jane replied, "The great difficulty I see is, the firm has no money with which to purchase hives, and therefore I think we shall be compelled to hunt up old boxes and kegs for hives, as Mr. Brown does. As I have been reading about bees, I have learned about several things we shall need, and I have been wondering how we shall obtain money to buy them."

"I know very well," said her father, "you can not buy without money; but if you and Tommy keep up your interest in your apiary, I will lend you what money you need, and will wait on you until you have honey to sell. I will do so, not because I approve of going in debt, but because I desire the firm to start in business right, and I see you can not do that without some money. Therefore I will lend you money to buy whatever I feel will be needed. Now let us decide what kind of a hive we shall use."

Tommy then gave his views. "I did think we could use nail-kegs for hives. I think we can get them for nothing. Then I thought we would call our apiary the 'Nail-Keg Apiary;' but lately I have thought I should like nicely painted hives. I want a hive from which we can take honey without killing the bees. I guess we can not do that with nail-kegs. Besides, nail-kegs are not very pretty bee-hives."

Here Jane asked her father, "What are movable-frame hives? In both the book and magazines I read much about them, and it seems all bee-keepers are using them; but I do not know what they are."

Mr. Meek replied, "I am glad you asked that question, because movable-frame hives are the kind I prefer, and the kind I want the firm to use. Bee-keepers often want to open their hives and examine them, or they would like to take a comb filled with honey or young bees from one hive, and give it to another. In the old-fashioned box hives they could not do this. At length some men who had given much study to bee culture conceived the idea of compelling the bees to build each comb in a neat little frame. We can handle that picture on the wall easily, because that and the glass protecting it are held securely in a frame. Suppose that, instead of that picture, there were a comb of honey in that frame, we could handle it as easily as the picture and glass. Bee-men now have all their combs built in frames, and such hives are called movable-frame hives."

Mrs. Meek here asked, "Are these frames any advantage to the bees?"

Her husband replied, "No. The bees would prefer a clean empty box to a box filled with frames; and if a person does not intend to handle the frames, it is a needless expense and trouble to have them. A mere box would be cheaper, and would suit just as well. Now, do you expect to handle your frames?"

"Oh, yes," said Tommy.

His mother laughed, and said, "Wait, Master Tommy, until you receive a few stings, and see how you stand them, before you talk about opening a bee-hive and taking out the frames."

"But, mother," said Jane, "I have been reading in Mr. Langstroth's book, and also in the magazines, that we can quiet bees by blowing smoke upon them; and I also learned that we can buy a little instrument for this purpose, called a bellows smoker, which is very useful to any one handling bees. I suppose the smoke makes them stupid."

Mr. Meek said, "That is not the reason. A bee that is full of honey is not apt to sting, unless hurt. They have an instinctive dread of fire. When the smoke is blown among them they seem to think, 'Our house is on fire and will be burned up, honey and all, and we be turned out to hunt up another. We must save all we can;' so each bee runs to where there is some honey and fills its honey-sac, and thus becomes good-natured. If you close a hive and drum on it, the same result takes place. The bees think from the noise, 'Our home is being pulled to pieces; we shall surely be robbed;' and so each bee loads up, saying, 'We shall at least save all we can carry.' As you have been reading Langstroth's book, and hence know something about his hive, I think you had best adopt it. When in town one day last summer I saw Mr. Woods, a carpenter, making Langstroth hives for sale, and I think the best plan would be to buy some hives of him. When Tommy is older I think he might make his own hives; but I do not think he could at present. As you have only the one hive to provide for, we need not buy any thing for next summer until spring, and we see that our bees are all right. Have you any more questions to ask me?"

Jane replied, "Please tell us something about comb foundation. I have been reading about it in the magazines, but I do not understand exactly what it is."

Mr. Meek then gave a description of comb foundation. He said, "Wax is not something bees gather, but it is something manufactured in their bodies. It is much more costly than honey. It is thought that a colony may eat twenty pounds of honey to secure one pound of wax. Bee-men tried many ways to enable bees to use a second time the wax they had once made. The only way they could do this was by carefully preserving the old combs, and fitting them into frames. Even the small fragments were carefully fitted into frames. These the bees mended, making nice strong combs; but if these were once melted down into wax, the bees would not make any further use of that wax. At length comb foundation was invented, and by its use bees are led to accept old wax, and work it over. Comb foundation is made in this way: You take a nice smooth board, the size you want your sheets of foundation. Soak it full of water, then have a can of melted beeswax, into which dip this wet board, and a thin sheet of wax will adhere to the board, which, when cool, will slip off. In this way you obtain your thin sheets of wax. The commencements of the cells are then made on these sheets of wax, by machines invented for that purpose. Comb foundation, then, is merely wax sheets on which are the commencements of the cells. Bee-men think it pays to use foundation. The foundation used in the boxes must be very thin."

Tommy asked if it would be necessary to buy a machine and wax, and make this foundation. His father replied, "No, you can buy the foundation already made; and I advise you to buy some thin foundation for your honey-boxes; and, speaking of boxes, leads me to ask what kind of boxes you will use. This is an important matter. You know Mr. Brown obtains his surplus honey in all kinds of boxes. When he sells any honey he takes one or two of these large boxes to a store. Customers seldom want to buy at once as much honey as they contain, therefore the storekeeper cuts out chunks to suit them. This involves waste from the honey that leaks out, and makes such a muss in handling it that the storekeeper does not care to buy when Mr. Brown comes with another large box. It was thought, What an advantage it would be if surplus honey could be built in frames, like the combs in the lower story! hence the section box has been invented; that is, a box not all fastened together, but in sections. Suppose I take some lath and make six frames from it, say five by six inches in size. If they are neatly made, and of exactly the same size, they can be pressed together, with two end-boards, and will make a box that can easily be taken into six pieces. Now, if I could have each little frame filled with a comb of honey, they could be handled without any trouble. At present these little frames or section boxes are used by all bee-keepers who make a success of raising comb honey. These little frames do not cost much; and as they sell by weight with the honey, they do not really cost any thing. You must also purchase some little boxes or frames to hold these section boxes in place in the hives; and if you want straight nice combs in the little frames you will have to purchase strips of tin, called separators, to use between the sections. These section boxes are of different sizes. The most common sizes are those holding one and two pounds."

By talks such as these, the children were daily learning more and more about bee culture, besides what they learned from reading on the subject. But about this time their school opened for the winter term; and as they both attended, their minds were occupied about their studies and plays, and for a time bee culture did not receive so much attention from them. Still, they and their father frequently talked on the subject. When it became evident that winter had set in, Mr. Meek carried the hive into the cellar, and, placing it in a dark corner, inverted an empty barrel over it, so the light might not arouse them when Mrs. Meek or any of the family entered the cellar with a lamp. The cellar in winter was very dark and quite warm, being fitted for keeping vegetables. The bees could not suffer from cold, and it was hoped that all other conditions would prove favorable to their wintering successfully.

To be continued April 1.

CARNIOLANS: HOW THEY PLEASE OVER IN IRELAND.

A CROSS OF THESE BEES WITH BLACKS, NOT "CROSS."

EARLY in 1884 I ordered two Carniolan queens from Messrs. George Neighbour & Sons, of London, England, to be delivered about the end of May; but the first did not come to hand until June 19th. She was large, and of a mahogany-red color, and arrived in splendid condition. Her attendants were very much more numerous than I had ever seen with foreign queens, and there were only two dead bees in the box. Immediately on her arrival she was introduced to a strong stock (from which the former queen had just been removed), by caging her on one of the combs, and her bees were united to those in the hive. Next day she was released, and the day after she began to lay; but what struck me as very unusual was her remaining on the comb on which she had been caged for ten days after her release. I say this because I opened the hive daily, and always found her on the same comb, even after she had deposited an egg in every vacant cell on it, and I could not find any trace of eggs in any of the other combs, most of which had, in the meantime, become pretty well filled with honey. Becoming impatient at her want of attention to business, I took her by the wings and placed her on a comb at the end of the hive, after which her conduct was every thing that could be desired. As the honey-flow was over for the season before the Carniolan bees were out, I could not speak of them as honey-gatherers; but the queen bred rapidly, and the stock went into winter quarters very strong in bees.

The second queen did not arrive for several days after the first one; and when she did come I was not so well pleased with her. Although she was very large, and light in color, she was out of condition. I got her safely introduced to a strong stock, in which she did very well for a time; but about a month after her introduction I was standing in front of her hive when I saw her crawl out and fall to the ground in a dying state. I opened the hive and found numerous queen-cells, from one of which a queen hatched in due course. She was one of the smallest and darkest queens I ever saw, but she proved to be very prolific. I saw her all right when packing the stock for winter; but she disappeared mysteriously, and the hive was queenless when I looked at it the following spring.

The first stock came out of winter quarters in very fine condition, and throve amazingly. I moved it into a twenty-frame hive (the largest I had), but I could not get the bees to work in sections, whether placed in the body of the hive or over the frames, so I put a second story on the hive, with excluder lying between, for extracting, and the rate at which those bees brought in honey was simply astonishing. About the end of June, 1885, a swarm issued from this stock; but the bees, after clustering, returned without the old queen. I fancy she must have fallen to the ground and got lost, for I never saw her again.

My opinion of the Carniolans is, that they are the best bees we have. The queens are conspicuous, the bees are gentle, and good honey-gatherers, and they are very hardy. I think them quite as handsome as the Italians, Cyprians, or Syrians, none of which are good honey-gatherers in this country. To show the industry of the Carniolans, I may mention that I sometimes feed my stock by placing a supply of syrup outdoors at some little distance from the hives. The Carniolans are the first to find it out, and have every drop taken away before the blacks begin flying for the day.

Although the Carniolans do not stay on the combs as well as the Italians, they are much more easily handled than the blacks. The crosses, first, second, and third, with blacks, are almost as gentle as the full bloods, which is a consideration when introducing new blood into an apiary. I intend to get half a dozen queens next season; and if you will allow me, I shall write to you again to let you know how they go on. I think Carniolans would be more generally kept but for the difficulty in getting queens early in the season. Last year, for instance, I ordered some queens, to be delivered in May, but I could not hear any thing about them until August, when I was advised that *one* had arrived.

Dublin, Ireland. ROBERT SPROULE.

We are very glad indeed, friend S., to get so good a report from the Carniolans, and shall be quite glad to hear from you again on the subject. They will have a careful test in our own apiary this coming season, nothing preventing.

KIND WORDS.

SOMETHING TO THE CREDIT SIDE OF HUMANITY.

I ONCE before remarked, that it was not altogether people who are owing you that won't write letters, for very often we find those who have a *credit* on our books neglect to answer. Once a year we go over the credits and send statements. When a man does not reply after we have sent him one statement, asking him if his credit is correct, we write to his postmaster to see if he has moved away, or is dead, or something of that sort. A great many times it turns out that he meant to answer all the while, but kept putting it off. Now, we don't care how long money is left in our hands—in fact, we always prefer to pay interest where the sum amounts to any thing; but we like to know that it is all right, and that the rightful owner may clearly understand that he can have it any time he wants it. Well, the friend who writes below happened to be the postmaster himself, and here is his reply:

My Dear Mr. Root:—Your letter of the first inst. was received, and in reply I would say I have been postmaster so long I almost forget the time when I was not. Your other two letters were received. The reason I did not answer them was on account of my wanting again, some time, some more of your stock. It gives me pleasure to think there is one man in this whole United States who is anxious to do as he would like to be done by. You will hear from me again in the future. With many thanks I remain yours. G. W. GILLITS.

Ellington, Ia., Feb. 4, 1886.

Is it not worth while to get such a letter as the above?

HOUSE-APIARIES.

RECONSIDERED BY W. F. CLARKE.

AT all our conventions much useful information is gained by conversation with that quiet class of bee-keepers who have never outgrown the habit of modest childhood, but still make it a rule to speak only when they are spoken to. In fact, the lobby meetings are often more interesting and instructive than the public ones. The recent Detroit Convention furnished many illustrations of the truth of these remarks. Among the topics much discussed "betweenwhiles" was that of house-apiaries. The stillest man in the convention was perhaps the most talkative on this theme out of it. I refer to Mr. J. Vandervoort, who has become a thorough believer in house apiaries, and could "a tale unfold" in regard to them that would interest the dullest convention ever assembled. But, unfortunately, Mr. Vandervoort is no talker in public, though he is one of the best I ever listened to in private. He is a good writer, however; and if he would write out his views and experiences on house-apiaries he would confer a great benefit on the bee-keeping public.

The house-apiary is not a new idea, by any means, but one that has been tried in various forms for more than a century past. Most of those who have tried it for a time have abandoned it because of some objection or difficulty which might, with patient thought, have been obviated. From the window at which I am writing I have a full view of a pretty little house-apiary which I built more than twenty years ago, and abandoned after a single year's trial of it. I found it objectionable, because the house appeared to be practically one hive; and if a single colony became excited, all the neighbors joined in the row; also, because the entrances, being exactly alike, young queens were apt to enter the wrong hive when returning from their wedding-tour. Another difficulty was, that the place became unbearably hot when the blazing beams of the summer sun shone remorselessly down upon it. But these objections, as may be readily perceived, are by no means insuperable ones.

New reasons having presented themselves to my mind of late for thinking it desirable that hives should be housed, I have been studying the subject very carefully, and was in a position to appreciate Mr. Vandervoort's views as expressed in conversation at Detroit. The more I investigate and reflect on the matter, the more persuaded I feel that the next great step in advance to be taken in practical bee-keeping is the construction of houses which shall be permanent homes for the honey-bees during both winter and summer, and then good-by to three-fourths of the worry and trouble now connected with putting hives into winter quarters and taking them out again.

I have been reading the A B C article on house-apiaries; and, really, the arguments in their favor therein adduced are so numerous and cogent that I wonder they have not commanded more attention from bee-keepers. But, if my memory does not mislead me, these arguments have been, to a great extent, nullified by unfavorable opinions expressed in GLEANINGS since the A B C book was published. I think, too, the great objection urged in GLEANINGS as fatal to the idea of house-apiaries was, that multitudes of bees would get into the house and could not be gotten out of it back into their respective hives again. If so, this is a notable example of a difficulty which requires only a little thought, and a very simple device, in order to its removal. Have the house totally dark, with the exception of a little door just above the hive being operated upon. Bees always fly for the light; and there being none except what is admitted by the aperture close to their own hive, they will quickly go outside the hive, and hover about the entrance to their own particular hive until quietness is restored, when they will at once betake themselves to their own domicile.

Mr. Editor, if you will kindly republish, along with this article, a couple of cuts and a communication which appeared in GLEANINGS for May, 1882, it will obviate the necessity for my saying more at this time. The cuts and remarks give a complete description of "Oliver Foster's house-apiary," which is the simplest, cheapest, and most practical thing of the kind with which I have met. I think, too, it is almost a fac-simile of the house-apiary now used by Mr. Vandervoort, and of which he speaks in the warmest terms of commendation.

By the way, Mr. Editor, you said in your foot-note to Mr. Foster's communication, "I feel very much inclined to make just such a house-apiary now, and I rather think I shall like it." Did you do so? and if you did, with what results? Your experience, if you have had any in the actual working of that plan, would be opportune and valuable just at this juncture, when many of us are revolving the matter in our minds, and meditating the erection of a house apiary of some kind when spring comes.

Guelph, Ont., Feb. 5, 1886. WM. F. CLARKE.

Friend C., there are certainly many very good reasons why house-apiaries should not be abandoned. I, too, had a long talk with friend Vandervoort in regard to his house-apiaries, and the way in which he succeeds in getting large crops of honey from them. When we returned from New Orleans we rode a long distance with him, and discussed the matter pretty thoroughly. I tried to take down some figures in regard to his large yields, but didn't get them. If I am correct, he promised to write the matter up for us, but I think he has never done so. You propose to obviate my great objection by having the house totally dark, with the exception of a little door above the hive being operated upon. This necessitates a little door that will open and shut over every hive in the house-apiary—an item of no small expense, you will notice. The next question is, "Will it do the work when you get it done?" Coe's house-apiary, you may remember, was guaranteed to do this very thing. I rode forty miles on purpose to see it, and to see him do this little trick with several others. The house was darkened completely; the little door was opened, and it was near the floor too, so as to give the bees every chance to fly or crawl out. At my suggestion, some bees were shaken off on to the floor, at a little distance from this door. Did they go for the daylight at once, and all get off from the floor? Not at all. They did just as I expected they would—they went out when they got ready. But we had to go out of the building, and come back after a while, before they went back. If I mistake not, some of the young bees didn't go back, even then. I have tried all of these things thoroughly; and it is so much more bother and trouble, compared with hives outdoors, that no one I have ever seen yet likes house-apiaries, unless it is for raising comb honey. Keeping the floor clean is one great obstacle with us; and if I were to build another, there should be no floor—just the ground as it is outdoors; then if a bee is stepped on and mashed, you have not got to scrub to make things look decent again. So far as securing the honey is concerned, I believe I could get more honey in the house-apiary than in hives outdoors. In regard to the intolerable heat, somebody suggested making a house apiary like a corn-crib so that it would have nearly as much circulation as all outdoors. The man who made it, however, afterward reported that it didn't answer at all. Since wire cloth is so cheap, it might be a little better inducement. If you make it bee-proof, however, you are going to have trouble with the bees inside, that can not get out as before; and if you *don't* make it bee-proof, you must look out for robbers as you would if every thing were outdoors. Friend Vandervoort, I believe, raises his queens in the hives outdoors, and arranges every thing expressly for the production of comb honey. Before reproducing the article from Oliver Foster, we should like to have him tell us how it answers by this time.

SALT, A NECESSARY ELEMENT FOR BEES.

SALT FOR BEES; AN EXPLANATION OF THE REASON WHY BEES GATHER MUD OR DRY EARTH.

As I have often observed, and studied for several years the phenomenon described by John W. Niman, pages 9 and 10, 1886, I will give what light I have on the subject. I have, with one exception, always found bees sucking clay, as described, either in roads, barn-yards, and other places containing the excrement of animals, or the drainage therefrom, and hence I soon concluded that it was some constituent of this that they were seeking; but exactly what that was, I did not know. Happily, about two years ago an accident enabled me, as I think, to solve this. It became necessary for me to move my meat-house from where it had stood for about 30 years, and thus I exposed a little plot of ground that was filled with salt. My bees immediately took to it, as I had seen them in the above-described places. I saw that their reason for preferring the ridges and points was that, being more exposed, the evaporation was greatest there, and hence there was more salt deposited, or its solution made stronger. Now, as salt is the only thing likely to be found in all such places, and to fill all the requirements of the facts, I think salt is the element the bees were carrying to their hives; and with your permission, I will compound a new word for bee-keepers, and call such places "bee-licks." Further, I want to call the attention of bee-keepers, and emphasize the remark of friend Niman, in regard to what the bees were carrying in, "The want of it may be the cause of disease." W. H. GREER.

Paris, Tenn., Jan. 18, 1886.

Friend G., I shouldn't be surprised if you had hit the secret of this strange conduct of the bees. Further investigation, however, will be necessary to decide the matter. The fondness that bees many times exhibit for salt has been several times gone over in our past volumes. Of late, I notice that the poultry-journals are deciding that poultry must have salt in small quantities, or they will pluck out each other's feathers, etc. Now, let us see to it that our bees have a bee-lick near the apiary, where they can at all times help themselves. A glass jar of salt water over one of the grooved boards we advertise will, I think, be about the right thing. May be some sawdust around the jar would please them better, for I have seen them fairly burrow in sawdust where salt brine had been poured out on it.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.

THE GOLDEN BEE-HIVE.

A FEW days ago I saw an agent of the Golden bee-hive. He argued in favor of the Golden, while I was in favor of the Simplicity hives. At this time I use neither of the kind mentioned. The agent said to me that A. I. Root had abandoned the Simplicity, and was using the Golden exclusively. He attempted to produce a paper to that effect, but afterward said he did not have it with him, but would show it to me at another time. I concluded to write and hear from you at once, before I saw him again, to know if such be the fact. F. A. PARSONS.

Oconee, Wash. Co., Ga., Feb. 10, 1886.

Friend P., the patent-right man is trying to come the old trick over you. I have never seen a Golden bee-hive in my life, but we have published the agents as humbugs and swindlers for years past. We use the Simplicity hive for a summer hive entirely, just as we have done for the past thirteen years. The chaff hive is the same thing exactly, inside, and takes the same frame. It is better protected from winter's frosts and summer's heat.

THE BOHEMIAN-OAT SWINDLE, AND THE WAY THE AUTHORITIES ARE BEGINNING TO HANDLE IT.

The following we clip from the Medina *Democrat:*

A Bohemian-oats trial was recently held in Ohio, where a man sued some parties who sold Bohemian oats. He brought suit to recover the money, and won the case. He received damages in the sum of $200, and interest on the same for one year. Good decision.

We extract the following from the Cincinnati *Commercial Gazette:*

WEST SONORA, O., January 28.—A new bait in the Bohemian oats is some kind of new-fangled wheat, and it is sold at the same modest price of ten dollars per bushel, the farmer receiving a contract that his entire crop will be purchased from him in one year at $7.50 per bushel. Few persons have any conception of the gigantic extent of the Bohemian-oats swindle in Preble County. About $75,000 worth of notes have been given by Preble County farmers for the Bohemian oats. Most of the purchasers knew that the venture was risky, and a good deal in the nature of a swindle, but many thought the bubble would not burst for two or three years, or else they could bulldoze their money out of the agents without much difficulty. So in they went, and now they are rushing frantically around trying to get a small per cent of their money back.

It behooves us as citizens of Ohio to try to clear off this slur from the reputation of our State, for it seems that this swindle was first inaugurated here. It seems to me that notices like the above ought to be sufficient to wind up the Bohemian oats, not only in Ohio, but in every other State.

THE RASPBERRY.

FURTHER FACTS, CONCLUDED FROM PAGE 668.

SOIL.

A DEEP rich upland clay loam is preferable, but the raspberry can be grown successfully on about any soil that is worth planting to corn, and the number of bushels of Gregg raspberries which can be grown on a piece of land will compare favorably with the number of bushels of corn that could be obtained from the same land. In the spring of 1881 we set 500 Gregg plants on a piece of rather thin gravelly land which had been in corn the previous season; and without applying any fertilizers to either the corn or raspberry-plants we have gathered four crops of berries, and have a growth of canes for next year which ought to yield at the rate of thirty or forty bushels per acre.

PREPARATION OF LAND.

The land should be plowed and harrowed as for potatoes or corn, and then "run out" three or four inches deep, in rows six or seven feet apart; or it may be "run out" in rows three or three and a half feet apart, and potatoes, sweet corn, or something of that sort, planted in alternate rows, with the berry-plants the first year. During the first year, and especially at the time of planting, six feet seems like entirely too much room between the rows; but the man who puts the rows much closer will be pretty sure to regret it in two years. The plants should be set about three feet apart in the rows.

CULTIVATION.

The cultivation which the raspberry should have is not different, especially during the first year, from what corn ought to have; and the implements commonly used in corn culture, with possibly the exception of those plows which work both sides of a row at once, are suitable for the raspberry-patch. We have not used any thing but the hoe and the common double-shovel plow—going over the plantation once with the former, and about three times with the latter each year. In the first year it may be necessary to use the cultivator as late as August, but after the first year we have not cultivated later than the latter part of June. While deep cultivation close to the plants will doubtless be injurious by destroying and mutilating many of the roots, we feel sure that moderately deep cultivation at a little distance from the plants has not injured our plantation.

PRUNING BLACK CAPS.

When the young plant is set in autumn or early spring, it has no top except a few inches of the old cane from which it was propagated; but in due time it will send up one or more young shoots; and when these have attained a height of from 12 to 18 inches we pinch out the tops. This pinching-out of the tops stops the upward growth, and causes the plant to throw out several laterals; and in the following March these laterals are cut back to from 10 to 20 inches in length. This pinching-out of the tops in summer (about the first of June), and cutting back of the laterals the next spring together, after the first year, with the cutting-out of the worn-out dead canes, which may be removed either directly after the fruit has been gathered from them, or at the time of the regular pruning the next spring, is the amount of pruning required to keep the plantation in nice order. A child ten years old can pinch out the tops in summer, and a girl of twelve years did the work of cutting back the laterals on one acre last spring. I think a good active man can cut back the laterals, cut out the old dead canes, carry out and burn the rubbish of an acre, in about three days.

GATHERING THE FRUIT.

Berries should not be picked when wet with dew or rain. They should be picked without being mashed, and put into quart baskets as picked, and the baskets should be free from unripe or imperfect berries and leaves; they should contain nothing but dry, ripe clean fruit. In the summer of 1885 we had one girl who could, under favorable circumstances, pick 100 qts. in a day; but her best average for a week was 62 qts. The price of picking is one and a half to two cents per qt., the pickers boarding themselves. In this section of country the selling price of berries during the past season ranged from 15 cts. to 6¼ cts. per qt. The bulk of the crop sold at much nearer the latter than the former.

YIELD OF HONEY.

I don't know how much honey the bees can get from an acre of Gregg raspberries, but I know that for ten or more days, about the last of May and first of June, they just swarm over the raspberry-patch from early in the morning till late in the evening. The Gregg raspberry blooms with the locust, and the honey gathered from these two sources is a superior article, both in color and in flavor; and some that I extracted June 7, 1884, has not yet candied.

I live in a farming community, at a considerable distance from the railroad, and from large towns. No one about here thought of buying berries, or of growing them for sale, and I supposed that I should have to evaporate mine and send them to market that way. Now for the result. Last summer we sold about 100 bushels to persons who came to the yard after them, and some days it took nearly half of my time to explain to would-be customers that it was impossible to let them have berries. Some of the men near Steubenville pick and sell about 100 bushels a day.

In conclusion, I wish to say that it will not pay to write to me about plants. I have none to sell.

E. Springfield, O., Jan. 26. R. M. REYNOLDS.

Why, friend R., you almost take our breath away. As many bushels of raspberries to the acre as farmers get bushels of corn, and the raspberries are worth about three or four dollars a bushel, while the corn is worth thirty or forty cents! The trouble is, however, that men who raise corn, for some reason or other could not or would not raise raspberries. I am astonished again to know that you found a home market for 100 bushels of raspberries. This is a good deal like establishing a home market for comb honey in many places. The facts you give us are very valuable indeed; but it still seems to me that ground that will grow corn will not always grow raspberries. Raspberry culture has been tried a number of times in our vicinity, but they always grow up to weeds after a little while, and things get back in the old channel. One thing I can tell you, however, the Gregg raspberries on *our* honey-farm are not going to grow up to weeds. If you have not any plants to sell, and more customers for your berries than you can possibly supply, the most uncharitable of our readers won't think you are an interested party in giving us these facts. Another thing, this business of berry culture furnishes so much employment for the boys and girls. A girl or boy who earns money, and buys what he needs with the money thus earned, is smarter and brighter, and ahead in every respect, of those who live along some way without employment. Now, then, for the berries and honey. Who will have a berry-patch this very spring?

SOME OF A BEGINNER'S EXPERIENCE.

SEPARATORS OR NO SEPARATORS.

I HAVE had a few swarms of bees for twenty years, in different kinds of hives, with but little knowledge of how to manage them. About one year ago I thought I would try to see what I could learn about keeping bees. Mrs. Lizzie Cotton's circular came to hand about this time. I sent for her book on bee-keeping. I had a hive made according to her plan, but I did not like it. Next was Quinby's book on bee-keeping, which was very good, but I did not fancy his hive. I next saw your advertisement, I think in the *American Agriculturist*. I sent for a catalogue, then the A B C, and then for GLEANINGS. I believe I struck the right track. I ordered from A. I. Root 10 chaff and 10 Simplicity hives, and went to work with a will. I had six colonies in different kinds of hives.

In the spring of 1885, as soon as the weather was warm enough I commenced to transfer. I transferred them into Simplicity hives. About the middle of June they commenced swarming, and each hive sent out three swarms. I hived them all but one. The fountain pump I ordered of you is "just splendid." I could drive them in any direction by throwing a spray into their front ranks. The one that left was a third swarm, and with all the water thrown on them they did not stop. They did not even stop to cluster. The new swarms in new hives worked well, and I think I have learned something, but still I feel that I am a dull scholar, for I did not put any starters in my nice metal-cornered frames, and before I was aware of it the bees had built them crooked, and joined them so I could not lift them out of some of the hives. One of the first swarms sent out a swarm. One made 30 lbs. of honey in 1-lb. sections; two others made about 10 lbs. each. This surplus honey was all made in crates in chaff hives. For a number of years, honey has been exhibited at our county fair, so I thought I would show our shipping-crate filled with 1-lb. sections. Each section was filled out, all propolis was scraped off the sections, and placed in the crate. Having had separators between them when they were filled, they were straight, and all the sections looked alike. Each section could be lifted out with ease. I placed the crate on the table near two other lots of honey that had been left there for the premium. The other two lots were in a rough box with glass in one side, all nailed up, but one could see the 1-lb. sections through the glass—the same kind of sections mine were—and as nice-looking honey as mine, but they did not use separators between the sections, and consequently they were irregular, with some broken honey-comb. Mine was taken out, section after section, and turned over and over, and no sign of any breakage. I was in the hall but a very little while, but I told those in charge to let every one examine it all they wished to. One man asked me if that honey was for sale. I told him he could have it, and another and another. The other two lots were carried home. I wanted to take mine home, but it was too good to keep.

The most difficult problem I find in bee-keeping is how to make bees store surplus honey in boxes. Last summer I had one swarm which sent out three swarms, and stored 15 lbs. of surplus in boxes, while others, just as strong, stored no honey in surplus-boxes. L. N. CHAPMAN.

River Falls, Wis., Jan. 12, 1886.

HOW TO PUT UP AND SHIP BEES BY THE POUND.

OLIVER FOSTER'S METHOD.

AS it has been requested in GLEANINGS, I will give a description of my method of putting up and shipping bees by the pound, with some "reasons why." In his foot-notes on page 66, the editor says: "But we wanted to know how Mr. Foster puts up bees without any brood or comb," etc.

By referring to my circular you will see that I do not sell bees that way; nor can I see any advantage, either to shipper or buyer, in depriving the little fellows of their cherished young during shipment; but there are some grave disadvantages to all concerned. In early spring, when most shipments are made, every good queen (and we would have no others), will keep her hive supplied with all the brood that her bees can possibly cover and provide for. Now take a pound or more of bees without brood, from such a colony, and the result will be more or less of chilled or half-starved brood, which means a filthy mass for the remaining bees to remove, or dwarfed and feeble bees for the next customer.

If the brood is divided between the other colonies, this only divides the difficulty and makes extra work. As for the bees confined for shipment, we do not claim that they really mourn the loss of their little ones as animals of a higher order do, but every experienced bee-keeper has noticed the salutary influence that the presence of brood, especially unsealed brood, has over a colony in almost any condition.

This influence shows its power for good when "the little busy bee," born peculiarly for liberty, is consciously imprisoned in a shipping-box. It is also very important, when the bees are liberated in their new home, to have some of their brood with them, as, after a long journey, they may abscond without it. Also if the colony is obliged to begin at the "foot of the ladder," without brood, instead of increasing from the first they must naturally decrease in numbers until their brood hatches, which will be at least three weeks. The dealer should make it to the buyer's interest to get some brood with his bees.

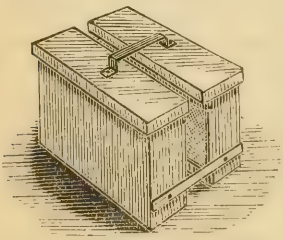
As for stores for shipping-cages, I claim that sealed clover or basswood honey is the *cheapest*, *safest*, and *best* food for bees in summer or winter, in freedom or in confinement; and the lightest and most perfect receptacle for these stores is the comb in which it was originally stored. Sufficient stores are usually found in the combs containing the brood to supply bees and brood during their trip. If not, a small block of sealed honey is placed on edge against the side of the box on one lower corner, and the comb is then pressed tight against it and fastened. If there is too much honey, part should be extracted, to save express charges. Before describing my shipping-box, we will notice one more point.

We have all seen bees worrying on the inside of a window. Their instinct seems to tell them, in a general way, that they can go wherever they can see, so they will worry themselves to death in a few hours, trying to fly through a pane of glass. If we lean a board against the outside of the window they will not try to get through opposite the board. If the window is of wire cloth instead of glass, and if the room in which they are confined is only a shipping-box, the delusion is much the same, and it is *worry* that kills most bees in shipping. I know there is a vast difference in bees as well as in persons about worrying; but the best way to get along with either is to always "stroke the right way of the fur."

HOW MY SHIPPING-BOXES ARE MADE.

My shipping-boxes are all made of thin lumber, mostly 5-16 inch thick. For colonies of 5 or 6 lbs. of bees I use boxes about the size of the Simplicity hive. Wire cloth is tacked over the bottom, and a movable wire-cloth cover slips over the top, trunk-lid fashion. The covers are fastened down by two pieces of hoop iron, one at each end passing across from cover to box, and fastened to each with screws. These covers are provided with strong handles by which the whole box can be easily handled with one hand.

To raise the bottom off the floor, and to protect the wire from being broken, a cleat, one inch square, is nailed across each end over the wire, and a thin bottom is nailed to these cleats, which leaves a one-inch space below the wire, open at each side. For smaller colonies I use boxes like the above, but only half as wide. These will do for 5 lbs. of bees, if only one or two combs of brood are put in. To hold the combs in place, I use spacing-sticks ½ inch square and 8 inches long. A one-inch wire nail is driven through, ⅛ inch from one end, so that the point projects ¼ inch. These sticks are placed between the ends of the frames, so that the point of the nail rests on the top of one frame, and the head on the other. When the sticks are in place, the frames are crowded together, and the outside one is fastened with wire nails.



OLIVER FOSTER'S SHIPPING-CASE.

Most of my orders are for packages of one pound of bees, one or two combs of brood and a queen. For these I use boxes just wide enough for two combs. As these fall over so easily when single, I fasten two or three together, where several are ordered; and instead of having wire on the top and bottom, I have it on one side only. To fasten the boxes together, a piece of strap iron is placed across, from box to box, at each end near the bottom, and bolted to the boxes, leaving a two-inch space between the boxes. A hoop-iron handle is then fastened across the top, being bolted at the ends to the middle of each cover. This also holds the boxes in place at the top. These bolts are 3-16 × 1 inch, with a round slotted head, and they are fastened permanently in the covers and end-boards with the heads inside. To keep the bolts from turning, I drive a one-inch wire nail part way in, near the end of the slot, then bend it over into the slot, and clinch the point on the other side. As the nuts turn easily with the fingers, the boxes can be taken apart and put together quickly without tools. Bees will ship safely in these if properly put up. Most of my boxes have been returned to me free by express. Our agent recently referred the question to the Supt. of the American Express Co. His reply was, that bee-boxes do not come under the head of "empties," to be returned free. If bee-dealers would adopt a standard shipping-box, something light, strong, and handy, as mine are, I think the express companies could be persuaded to return them free, as they do other empties.

10—OLIVER FOSTER, 250—296.

Mt. Vernon, Iowa, Jan. 25, 1886.

Friend Foster, your points in favor of a comb of brood, instead of sending a pound of bees without any brood or combs, are well taken, and I grant every one of them. But, may I say there is something to be said on the other side? And as this is a very important matter indeed, I hope I shall be excused for going over ground that has been several times gone over already. Your comb of brood is worth a good deal to you; and if you send it, you have to get your pay some way. Perhaps I should add, that we do not have brood die for want of bees to cover it. We always have more or less colonies having many bees and little or no brood. This comes from selling off queens, and waiting for new ones to lay, so there is hardly ever a time in our apiary when we can not place a frame of brood of any age where it will prove a blessing to the bees that receive it, and not an egg nor larva will be lost. Now, we find those blocks filled with Good candy very much cheaper, and easier to handle, than a frame of brood. Second, a great many of our purchasers don't want a frame of our combs, because the frames will not fit their hives. A large part of our trade, for instance, is with those who have lost their bees in wintering. They have empty hives and empty combs. They want queens and bees, but they don't want our kind of frame nor our combs. Another thing, a great many bee-keepers have a choice queen, with so small a cluster of bees in the spring, that, if she pulls through, she will be little if any profit; whereas a pound of young Italians, or even half a pound, would set her right on her feet, so to speak. Some hatching brood might do very well, but she is already able to furnish more eggs ten times than her bees can *possibly* take care of. In such a case, only *bees* are wanted. If bee-keepers could be made to come down to a standard frame, so that the frames used by one party would be sure to fit nicely the hive used by another party, it would be a grand thing, and right in line with your plan. We also furnish brood-combs where wanted and paid for, as you may recollect; and where we send as many as three or four pounds of bees, we prefer to furnish stores in a frame of comb with some brood. But I should say that nine out of ten of our orders are for one-half or a whole pound of bees without any brood, and, a great many times, without any queen. But while I think of it, I believe that bees without a queen always ship better if a little piece of brood is given them. Your suggestions in regard to covering the bees so that not much light strikes them, is a good one. I am anticipating a great deal of pleasure in shipping bees in a single section of Heddon's new hive.

REPORTS ENCOURAGING.

50 COLONIES, AND 2500 LBS. OF HONEY; THE RELATIVE GOOD POINTS OF BLACKS AND ITALIANS.

I THOUGHT I would send my report. I commenced this spring with 50 colonies; got 2500 lbs. of honey—500 extracted, and the rest comb. The extracted was all sold at home at from 12½ to 15 cts. About half of the comb honey was sold at 17 to 20 cts. It will be five years next April since I commenced bee-keeping. I have had Italians with the black bees all this time, and I have been trying to find out which are the best. I have got my bees pretty well mixed, from pure Italian to black. I think the difference is not so much in the bees as what they get honey from. I think the black bees will get the most honey from raspberries. They are about equal on white clover. The Italians are the best on basswood; the blacks are the best on buckwheat. The Italians are the best on thistles; they are about equal on goldenrod. This will show you how hard it is for me to decide, as basswood is from two to three miles away, and doesn't blossom every year. As to the handling, it will depend on what we work them for. You can get more honey from black bees in one day, than from the Italians.

Portville, N. Y. F. ROULO.

FROM 37 TO 74, AND $320 IN MONEY.

In the spring of 1885 I purchased 37 colonies of black bees, in Quinby-frame hives. I increased to 74 by natural swarming, and worked them all for comb honey, in one to two lb. sections. I received from honey sales, $230; for 20 swarms sold, $90. I put 53 in cellar, Dec. 1; six were light and one uneasy, with bees dying. Jan. 10th I set them on a clean bottom-board, and they seem to be more quiet now. Cellar temperature ranges from 40 to 45°. I fixed the Heddon plan for preventing afterswarms, and it worked well with me.

Depeyster, N. Y., Feb. 14, 1886. FRED C. CLARK.

MY REPORT—A B C CLASS.

I started in the spring of 1884 with one colony of black bees; divided them, and for my trouble I received many stings and no honey. I packed them in forest-leaves, and they came through the severe winter in fine condition. I fed them about 20 lbs. of damaged sugar in the spring, to stimulate the queens, with fair success, I think, for a beginner, as I have taken 175 lbs. of fine comb honey. I increased from two to six colonies, all Italians. My honey pays all expenses, and I have my bees for profit, which I value at $50.00. JOHN S. SCOVEN.

Kokomo, Ind.

A MILD WINTER.

Our bees are amusing themselves by robbing each other this warm weather. We have not had more than one day at a time when they did not fly out. We are having a very mild winter. We commenced this spring with 22, and increased to 60. We extracted 4004 lbs., and got 346 lbs. of comb honey.

Church Hill, Miss., Dec. 30, 1885. WM. BOLES.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

Thou shalt not bear false witness against thy neighbor.—Ex. 20: 16.

WE are pleased to see the *Farm and Fireside* come out fairly and honestly and own up that the charges against bee-men and comb honey are false, as in the following:

> Notwithstanding all the stories to the contrary that have been floating in the press, comb honey has never been counterfeited.

By the way, I am very glad to be able to say that the New York *Witness* published promptly the remonstrance which I sent them. As you may wish to have it copied in your own papers I give it below, as it appeared in the *Witness* of Jan. 28:

> NO ADULTERATION IN HONEY.
>
> *To the Editors and Readers of the Witness:*
>
> May I ask space to say that no such thing as manufactured comb honey has yet appeared in the market of New York city, or any other market in the world? and so well am I satisfied that the whole thing is an utter impossibility, and ever will be, that I will willingly spend $1000 in hunting up the establishment where such an article is made, if it be made anywhere. I choose to speak thus strongly because of the statements appearing in the *Witness* and other papers to the effect that our comb honey is spurious, some papers even going so far as to say that neither the comb itself nor its contents ever came from a bee-hive. Liquid honey may be adulterated, and no doubt is to some extent; but as the quality of honey gathered by the bees varies greatly, ranging from a grade of honey so poor that no one would want to eat it, all the way up to our finest clover and basswood and mountain-sage honey, it is nothing strange that the public denounce as spurious a good deal that may have been put on the market. Let us fight down frauds, and insist that goods be labeled truthfully and honestly; but let us be careful about declaring that comb honey and "hens' eggs" are manufactured by machinery. We bee-keepers will try to make due allowance for pleasantry, and for the fondness of our American people for something new and wonderful; but please remember, dear friends, that what is fun for you is often death to us. A. I. ROOT,
>
> Editor of GLEANINGS IN BEE CULTURE.
>
> Medina, O., Jan. 28, 1885.

Now, if any paper that has unwittingly given place to these sensational statements will give us a hearing by publishing the above, or any thing similar, of course nothing further is to be desired; and we can recommend the *Rural New-Yorker*, *Prairie Farmer*, *Farm and Fireside*, and the *Witness*. We shall be glad to give the names of all other papers that seem disposed to grant us a hearing.

The *A. B. J.* comes down heavily upon religious papers that have published these statements, damaging to our industry, and are slow to correct the mischief they have done. Friend Newman says they are breaking the ninth commandment, which was "thundered from Sinai"—"Thou shalt not bear false witness against thy neighbor." We are sorry to see that the N. Y. *Tribune* still sticks to the "fraud" part of the business. They copy the following, apparently by way of indorsement, from the *Central Baptist*:

> Glucose adulterates our sugar, syrup, jellies, and preserves, and now it seems we have honey-comb filled with it. Some day the laws against adulteration of food will be explicit enough to reach these rascals.

Yes, dear friends of the *Tribune*, I do hope the laws will some day be explicit enough to reach such rascals, and the rascals as well who break the ninth commandment.

Later.—The following is just at hand, from Robert West, editor of the Chicago *Advance*, so we have one more paper to add to our list of those who are willing to give us a hearing:

> *A. I. Root, Esq., Dear Sir:*—Your very kind letter came when I was too ill to reply to it. Your communication we gladly publish next week. Thanking you for the spirit of your criticisms, as well as for your letter, and assuring you that truth in the matter is what I seek, I am yours truly,
>
> Chicago, Ill., Feb. 16, 1886. ROBERT WEST.

In conclusion, I am frank to admit that I have been greatly disposed to show a want of charity in this matter, and I hereby beg pardon for being hasty in regard to the *Advance* and *Witness*.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

TESTING EXTRACTED HONEY.

AN inquiry has been made by a friend, who uses honey as a medicine, and he wishes to use it pure. How can extracted honey be tested, to discover any adulteration that may have been made? Probably you would be pleased to notice this inquiry in GLEANINGS.

Elkhart, Ind., Feb. 11, 1886. J. S. COFFMAN.

Friend C., there is no way that can be laid down in books and journals for testing extracted honey, that I know of, that wouldn't be expensive and rather impracticable. You can test the presence of cheap glucose by sweetening a cup of tea with a teaspoonful of the honey. If it contains glucose, it will make the tea black. A few days ago some milk was left in a tin dish, from which the tin was worn off so as to expose the iron. As soon as the milk was poured into the tea, the mixture looked like ink. The tannin contained in the tea makes a delicate test for the presence of iron. If the quality of the glucose, however, were very good, there would be no trace of iron about it, so the test is by no means infallible. To get a chemist to test honey usually costs from five to ten dollars, and he may make a mistake, even then. I do not see any better way than to buy your honey of some reliable firm, or get it with the name of the producer on the package. Certainly not one bee-keeper in a thousand would put his name on a package of honey that was not pure. A good many samples of honey have been sent me since our late discussion in the matter, but I am quite certain that all that have been sent me have been absolutely pure honey, made by the bees, although some of it is very poor in quality.

YELLOW WASPS, AN ENEMY TO THE MOTH MILLER.

Last spring, as I had no place to keep the combs from the hives in which the bees died during the winter, I hung four or five in a hive, and placed five or six hives, one on top of the other, with a bottom-board between each hive. I had six such tiers. When I used them in June and July I found thousands of the wings and legs of the bee-miller under each hive, and but five or six moths in the whole lot of combs. A nest of very large yellow wasps, or hornets, had taken possession of one of the hives, and filled three of the combs nearly full of brood. They got so strong that I had to burn them. I think there was three pints of those big yellow fellows after I had got them killed. A strange part of this freak is, that in a short time after I had killed the ugly "varmen," what combs were left became so full of moth worms that I had to remove them to a safe place, and brimstone them. Now, what I should like to know is, did the wasps kill all these millers? If not, what did? At any rate, they spoiled three combs for me, as the bees would not clean the wasps' brood out of them. WM. L. KING.

Sodus, Berrien Co., Mich.

Friend K., your remarks remind us of what L. L. Langstroth recently wrote in regard to spiders as a protector of empty combs. The yellow wasps, without doubt, decided that the larvæ of the moth were just the thing to feed their young, and probably did a thriving business, as the quantity of brood you mention attests. You give us another strange fact; and that is, that these wasps will use combs built by bees. Why did you kill the wasps? Why not let the wasps' brood hatch out itself, and then your combs would have been as good as ever?

WHAT IS SPHAGNUM MOSS? AND SOMETHING ABOUT WHERE TO GET IT.

Please tell what sphagnum moss is. Is it the kind that grows on old logs, in low ground?

The Bend, Defiance Co., O. F. W. MOATS.

Why, friend M., it is the kind of moss you refer to, but I suppose any sort of moss would do for making seeds grow, on the plan given by Mr. Henderson. We get ours from a peat swamp that we underdrained last fall, for the privilege of drawing away as much peat as we wanted. We spade up the moss in great chunks as big as a man can lift. It is then dried over our steam-boiler, when it is rubbed through the hands until fine, and then sifted over the seeds. We have formerly got sphagnum from florists and from nurserymen in the cities; but the kind we get from our own swamp here at home works nicer than any we can purchase.

SOME WISE COUNSELS FROM CUBA.

I feel like thanking G. M. Doolittle for his article on page 13, "Few or many Colonies: which?" and I do not know that I should slight you for the remarks you make upon his article. If the beginners could be made to understand that success in bee-keeping does not so much depend upon the number of colonies as upon the amount of honey secured from a few colonies when the range is not overstocked, there would be more satisfaction and better-filled pocket-books. Let's have no more colonies than our range will support, and lots of bees in each colony. A. W. OSBURN.

Havana, Cuba, Jan. 22, 1886.

MARKING A BEE WITH PAINT.

I see in your last issue that you suggest putting a drop of white paint on the back of bees to mark them, so as to see how long they would live after their sting has been removed. I would say, that oil of any kind, put on to a bee or other insect, will kill it in half a minute, as it gets into the breathing-pores and strangles it. C. C. MILES.

Des Moines, Ia., Jan. 22, 1886.

So says theory, friend M., but the facts do not agree. A little bit of thick paint on the fur of the bee's body does not hurt him, as several have proved. One friend let the paint run through a crack in the roof of the hive while he was painting it, and, without trying to, he marked several of the bees; and, strange to say, the queen was among them.

HOW TO GET SPIDER-PLANT SEEDS TO GROW EVERY TIME.

It is natural for all wild-plant seeds to lie in the ground and freeze through the winter. We must follow nature if we want them to grow. You want to plant, or, rather, bury the seeds, in the winter. Take a small bag, put the seeds in it, and bury it in the ground one or two inches deep, where they will freeze during the winter; and after the ground is done freezing in early spring, prepare a good rich bed, make it in rows one or two feet apart, then go to where you buried your seeds and take them up, and they will all be sprouted. Take them, and plant and cover with loose rich dirt, and every seed will be sure to grow with no more trouble, except to transplant when large enough.

Parrish, Ill., Dec. 14, 1885. MOLLIE DIXON.

We have sometimes thought that freezing the seed was an advantage; at any rate, we know that freezing does not hurt the seed, because the spider plant is a great plant to come up of its own accord wherever it is sown the season before. We now get any sort of plants to grow by simply sowing the seed, by the plan recommended in our issue for Jan. 15, page 62, for raising seeds for vegetable plants. We are going to try some spider plants this year over those reservoirs. Two or three feet of heavily manured soil, with water underneath it, ought to do something stupendous with the spider plant.

WHAT IS THE PROCESS OF PACKING PORK WITH HONEY?

Again I am notified my time has expired with the old year. You ask me if I have found GLEANINGS a good investment? I have, and I have learned more by reading it than any other paper I take—not only about bees, but about other matters in Home readings, "What to Do," etc. What you said about the convention gave me new ideas and some good advice. As using honey for packing pork is something new to me, please give your readers the process, or how to use it in packing pork, etc. My wife uses honey in place of sugar in making cake, etc. I for one like it; that is, when we have it. As to bees, I have only two hives. They are doing well thus far. I. R. GREEN.

Unadilla, Otsego Co., N. Y., Dec. 28, 1885.

Friend G., I do not know the process of packing pork with honey, only that the honey is made to take the place of sugar and molasses. Perhaps the substitution of honey where sugar and molasses are called for in the recipes for making pork pickle is all that is requred. Doubtless friend Muth can enlighten us.

IS IT POSSIBLE TO GET EVEN GOOD-LOOKING HONEY BY SUGAR FEEDING, AND AT A PRICE WHERE IT COULD COMPETE WITH REAL HONEY?

After reading Mrs. Harrison's revelation and Mrs. Wright's protest, I expected the editor would take up the gauntlet and hurl back such a volume of evidence as would prove, for all time to come, that sugar can not be fed to bees, and get it stored in sections, not even to get partly filled sections completed; but he didn't "rile," worth a cent. Now, why is this? Has some person demonstrated that it can be done, and we wish to keep the matter as quiet as possible, or are we all halting between two opinions? I have a notion to put (not before the house, as the house is too slow), but to the editors of all the bee-journals, and it is this: That they appoint an investigating committee, to be composed of a number of the prominent bee-keepers of the country, and request them to experiment and prove whether sugar can or can not be fed to bees, and have them build comb, and store it in the sections in paying quantites, or in any quantity. If such is the case, then the grumblers have the long end of the lever; but if it is impossible, and Mr. Wright is aware of the fact, he can easily convince those merchants that his honey is pure, by offering them a fair price for all the honey they can secure in that way. Even if honey can be procured by feeding, and it takes 1½ lbs. of 8-cent sugar to produce 1 lb. of honey, he would yet be safe in offering to pay a fair price for a large quantity, if there is any way of detecting the difference. Now, if I am not mistaken we need more light on this subject.

Brock, Neb., Feb. 13, 1886. J. S. JOHNSTON.

Why, my good friend Johnston, we had the answer to this question on page 101, where friend Unterkircher fed back 3500 lbs., and it did not half pay expenses. Surely, feeding sugar wouldn't give any better results, would it?

BEE STING POISON AS A REMEDY FOR RHEUMATISM.

We take the following from the *British Bee Journal* of Jan. 21:

> *El Siglio Medico* relates the following singular case, which may prove interesting to the bee-keeping world:
>
> A woman had suffered so much from rheumatism that for six months she had hardly slept. Her right arm was so affected that it was quite useless; she could neither work with it, nor dress herself. While in this state she heard of a countryman who suffered in the same way, and who had been cured by the accidental sting of a bee. As the pain caused by the sting could not be worse than that due to the rheumatism she determined to try the same remedy. Three bees were obtained and made to sting her on the right arm. The success of the treatment was surprising and complete. On the following night she was able to sleep, and the acute pain had all but completely disappeared; the arm was naturally a good deal swollen, owing to the stings, but the swelling quickly disappeared with cold-water dressing. The use of the arm gradually returned, and since there have been no symptoms of rheumatism. It is reported that the same remedy has been equally successful in several other cases. The cure no doubt was caused by counter irritation, and the treatment is analogous in its action to blistering, and the like. Moral: Let all rheumatic persons keep Cyprian bees.

WHY NOT USE THE NATURAL GAS IN OUR FACTORY?

I have been thinking of the wonderful benefit the people of this county are receiving from gas. It has made me think of you in your business. Just listen to me (though time may be precious). Think of a gas-well, with the pipes turned into your furnaces, running your machinery; then with smaller pipes running through all your rooms and into the stoves, then down to the —— where the "queen" lives, to warm up and light up the whole house, besides enough left for neighbors, etc.! Such a well we have in our county, also an abundance of oil. There are now 13 wells dug, all producing gas. One well throws, on an average, 100 barrels of oil a day; another throws 24 bbls. The 13th and last well is an enormous one, said to be strong enough to heat all Cleveland. The gas is found at about 1200 ft. in depth. The last well is now burning from a pipe stand of 57 ft., throwing a flame of from 50 to 70 ft. I suppose you have seen many accounts of it; don't you believe you, too, can find it in Medina by going down after it? Have you thought of it? It's worth thinking about. Or send Ernest here to start up a shop. Many manufacturers are looking this way. Just come and see for yourself. Before the last well was under control I took a broom-handle and tried to hold it over the six-inch escape-pipe (now remember I mean the broom-*handle*), and it would take it to this side and that with a "Zip, hiss, sizz," etc. You can imagine a little its great capacity. I am looking forward to the time I can control my cellar for the bees to a dead certainty. Over 4000 stoves in Findlay are being heated by gas this winter. The charges are $12.00 a year for one stove; but the probability is, that it will be one-half less next winter. That is as cheap as wood, and you don't have to carry out ashes, and there is no muss. As I look out to the east, I now can see the great light 12 miles away. I should have said, perhaps, that while the gas escapes it makes a wonderful roaring—so much so, that a train of cars can't be heard when equally distant. S. H. BOLTON.

Benton Ridge, Hancock Co., O., Feb. 11, 1886.

Thanks for your suggestion, but Ernest has his hands full at the Home of the Honey-Bees. About the time father started in bee-keeping he had the natural-gas hobby too. He accordingly sunk a well, but he didn't even "strike ile." Very recently one of our townsmen sunk a well to the depth of about 1200 ft., at a cost of as many dollars, but the attempt resulted in an entire failure as far as obtaining gas was concerned, or any thing else, for that matter. ERNEST.

TYPE-WRITERS—WHAT ONE TO BUY.

Referring to page 54, GLEANINGS, let me say, do not be fooled by the *pretty writing* of the Hall type-writer. The cost is $40.00. I have used one—*neat work*, but *hard slow work*. I was in love with my Remington, but was induced to try the *improved* caligraph, and I will say that the improved caligraph has about *twenty good points* over the best Remington. The same man invented both, and controls his patents. Several of the departments in Washington are *now* using caligraphs.

D. H. KELTON, Captain 10th Infantry.

Cantonment on Uncompahgre, Col., Jan. 28, 1886.

We are very glad indeed to get your opinion in this matter, Captain K., for we have known you for a good many years, and feel sure that your opinion is unbiased, and that you seek only the best good of bee-friends. Very likely the Hall type-writer might do good service where there was not a very large amount of business.

IS REVERSING OF FRAMES NECESSARY?

Some have said to me that they did not favor giving new swarms much brood. Why not? This is just what they make for themselves as soon as they can; and if left to themselves it will be three weeks before their number will be reinforced by young bees, during which time the force of working-bees is continually growing less. If it is desired to completely fill the brood-chamber with brood, as per the reversible-frame plan, alternate the frames of brood with fdn., when the combs are given to the new colony. If not so desired, place the brood in a body in the center of the hive, with fdn. at sides of hive. This latter plan, I am inclined to think, will prove more satisfactory in the end. This is on the ground that a shallow hive be used. I have one with 10 frames, regular L. size, but not so deep. I much prefer them to deeper frames, having cut down a lot of L. frames, and I would not change back again. I much prefer this method to the Heddon system for the prevention of after-swarms. And just now let me ask those who intend to use the Heddon system another season, to try this plan with a few colonies, and see for themselves if it hasn't decided advantages. It also affords a good opportunity for those who wish to raise any number of "swarming-impulse" queens, which may be taken from the colony on the old stand. This method, or a similar one, was suggested by W. B. House about three years ago, in GLEANINGS, since which time I have heard nothing of it. I have given it several years' trial, and am well enough pleased with it to continue, and without the use of reversible frames. Now let us see if reversible frames are not generally discarded by those who now are foremost in advocating them. C. W. KING.

Kibbies, Mich., Feb. 10, 1886.

MOTH WORMS THE CAUSE OF BAREHEADED BEES.

I want to corroborate the *thought* of C. C. Miller, in GLEANINGS for Jan. 15, in regard to "bare-headed" bees. I *know*, and am satisfied that it is caused by wax-worms. Several years ago I was worried by occasionally finding a comb with more or less bees uncapped, and was disposed to blame the queen; but accidentally I found a worm in the line of uncapped bees. Further investigation proved this to be the cause. I invariably found the worm. They invariably run in rows or circles, and the dead bees are generally fastened to the bottom of the cell by a web. I had to accept this theory as the cause. This last summer, noticing a row of uncapped bees in one of my combs, I said to myself, "Here is a worm;" and on digging out the row with my penknife, out comes the expected worm. This was the more noticeable to me from the fact that I had not seen a moth or worm since I came to this State, three years ago, and had come to the conclusion that bees were not bothered with them here; and in fact this is the only one I have seen. I have no doubt but you will find the worm, nine cases out of ten, upon investigation. M. H. SNYDER.

Arkansas City, Kan., Jan. 23, 1886.

Friend S., I am quite familiar with uncapped brood caused by moth worms, and I find it exactly as you describe. The bareheaded bees I have described in the A B C book are quite a different matter indeed. The patch is not oblong, but a complete cluster of cells. The capping is not torn, as where moth worms have been at work, but the cells are carefully fixed up in regular order around the heads of these uncovered bees. See reports elsewhere.

"WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT," HAS GONE DEEP AND TAKEN ROOT; REVERSIBLE FRAMES.

I was very much amused when I read the article of Dec. 15, "What to Do," etc. On page 861 it says, "Get some experienced farmer to tell you how much it would be safe to offer for old manure piles." Why, bless you, if you were out here you could get a train load for hauling it away. Your articles have gone down deep, and have taken root at Sunny Eden, a little farm of four acres. We do not think the cobble-stone drains would work in this locality. Do you think a sandy clay will hold water? The subsoil is two feet deep here. I expect to give your advice a practical test.

As we have not used reversible frames, we are in a dilemma as to whether they are an improvement or not. We should like to have this decided, as we wish to use only the best hive and frames. We do not want to make too rash a blunder by changing from this hive to that, just because some one advises it who has had long years of experience, but has not made a test of more than six months, or perhaps not that long, of the plan. W. S. DORMAN.

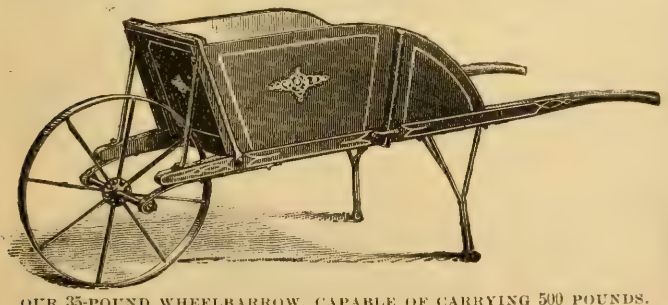
Mechanicsville, Iowa, Jan. 28, 1885.

Friend D., if you are where you can get good manure for drawing it away, and the distance is not great, you certainly ought to build up an immense business in market gardening. The cobble-stone drain, as you term it, will work in any soil where there is ever a surplus of water. Of course, the water will not stand as long in sandy or gravelly soil as it does in clay, but it would usually stand long enough to be a benefit to the growing crop.

ANOTHER WHEELBARROW FOR BEE-KEEPERS.

A WHEELBARROW FOR WOMEN, CHILDREN, AND PEOPLE WHO ARE NOT VERY STOUT.

WHEN I got our gas-pipe wheelbarrow I had been greatly disgusted by our wheelbarrows breaking down, rotting to pieces, and giving out when I didn't want them to. Well, the iron wheelbarrow remedies these defects. They will get rusty, it is true; but they never rot and never break, or rarely. On one occasion one fell from the top of our factory, loaded with brick, because of a rope breaking; but it was a pretty good wheelbarrow, even after it got to the bottom. There is only one trouble with it. Being all metal, it is necessarily pretty heavy. Sometimes when I go down across the creek for a wheelbarrow load of green corn, I conclude the wheelbarrow is heavy enough for me, without any load on it. Well, I have several times felt as if I should like to try my hand at making a wheelbarrow of our strongest wood and our best steel, properly braced and arranged so as to give strength, and yet not weigh one ounce more than is absolutely necessary. At the Ohio State Fair last year I found a wheelbarrow that came so near filling the bill that I asked the manufacturers how cheaply they could make 100. The wheelbarrow was all I could desire; but the price, I thought then, was more than we could stand. During the winter, however, they made a proposition which I considered very reasonable, providing they could make them at their convenience, when times were dull. Well, friends, the wheelbarrows are here, and they are a surprise to everybody. We show you a picture above.


OUR 35-POUND WHEELBARROW, CAPABLE OF CARRYING 500 POUNDS.

We have two sizes — the larger one weighing only 35 lbs., and yet it will carry 500 lbs. safely, and it can be packed so closely together for shipment that you can take the whole thing under your arm and walk off easily. The wheel has flat spokes instead of round. The different pieces are all cut and forged by means of dies. The legs are steel, so they will neither break nor bend, even if you bump them on the sidewalk. The springs are oil-tempered, with adjustable bearings, so you can tighten them up for wear. More than all, the wheelbarrows are the nicest job of painting and varnishing, I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size is only $4.00, the same as our iron wheelbarrow. The larger size is $4.50. The only discount that can be made is 5 per cent off for two; 10 per cent off for five, or 15 per cent off for ten or more. They can be sent either by freight or express. It is only five minutes' work to put one together.

NOTICES OF PRICE LISTS RECEIVED.

A. H. Duff, Creighton, O., sends an 8-page list of bees and poultry.

B. D. Sidwell, Flushing, O., sends a price list of Plymouth Rock poultry.

F. J. Crowley, Batavia, N. Y., sends us his 12-page price list of bee-supplies.

W. S. Cauthen, Pleasant Hill, S. C., sends his 8-page list of bees and queens.

G. W. McKallip, Hiawatha, Kan., sends a 12-page circular of apiarian supplies.

E. S. Brooks, Silverton, Oregon, sends a 13-page price list of supplies in general.

Henry Cripe, of North Manchester, Ind., sends his 3d annual 40-page list of supplies in general.

F. A. Snell, Milledgeville, Ill., sends us a 15-page descriptive catalogue; specialty, the Eclipse bee-hive.

E. M. Hayhurst, of Kansas City, Mo., sends us his postal-card circular—a printed list of bees and queens as a specialty.

T. G. Newman & Son, of Chicago, send their 35-page price list of apiarian supplies. Among the noticeable features of their list for '85, we notice the Heddon hive figured and illustrated.

Mrs. Lizzie E. Cotton, West Gorham, Me., sends out her annual circular of 32 pages. It is written in her usual bitter and censorious style, and breathes "threatening and slaughter" to the bee-journals and supply-dealers in general, which alone is enough to indicate that trouble may be expected by all who deal with her. We can only add our old stereotyped paragraph, which we always refer to when asked in regard to her standing. It reads thus, and probably always will:

> I am being asked my opinion of the new circulars Mrs. Cotton is again sending out quite plentifully. The statements she makes, and the prices she charges for the goods she sends out, would, in my opinion, forbid her being classed with our regular supply-dealers, to say nothing of the strings of complaints against her that have filled our bee-journals for years past.

John A. Thornton, Lima, Ill., sends a sheet concerning bee-supplies and Plymouth Rock poultry.

F. A. Salisbury, of Geddes, N. Y., sends a 30-page price list of apiarian supplies; also containing much valuable information besides.

Chas. F. Muth & Son, of Cincinnati, send a 30-page catalogue of apiarian supplies, besides a good deal of useful information. Among the notable features, we notice their new all-metal smokers listed.

Among the circulars recently printed at this office we notice the following

R. Schmidt, Caroline, Wis., a sheet, of apiarian supplies in general.

L. J. Trip, Kalamazoo, Mich., a 4 page price list of Italian bees and queens.

Oscar F. Bledsoe, Grenada, Miss., a 5 page price list: Italian queens a specialty.

Geo. W. Baker, Milton, Ind., an advertising sheet of bees, queens, and bronze turkeys.

Oliver Foster, Mt. Vernon, Iowa, an 8-page circular of queens, and bees by the pound.

A 14 page catalogue for J. M. Jenkins (mentioned on page 75). Specialties, bee-hives and implements. This catalogue contains a large amount of instructive matter, besides the prices it gives.

Hutchinson & Taylor, Rogersville, Mich., a 4-page price list of bees, queens, hives, sections, etc. As Mr. Hutchinson has adopted the new Heddon hive, he will now offer his old ones for sale.

TOBACCO COLUMN.

THE SMOKER AS A MEMENTO.

WHILE I was perusing the letters in the Tobacco Column, I was at once reminded of the fact that, three years ago last August, I, too, upon the impulse of the moment, quit the use of tobacco (for I had become an inveterate user of the vile weed, both chewing and smoking), and I also have a vivid recollection of informing you of the fact of my quitting the use of tobacco, and soon after I received a smoker from you, which I preserve with the utmost care as a memento from one who is doing in a manly and praiseworthy way what he can to reclaim his fellow-man from a habit which is not only nauseating, but perfectly useless and disgusting. I, too, have plead with many, and have so far persuaded some to quit the awful habit, that they would throw their old pipe and what tobacco they had into the stove, or elsewhere, and declare they would use the vile weed no more. How many have kept good their promise, I can not say. But for one I can say that, since I resolved to quit it, I have never touched, tasted, nor handled it, and with the help of God I never will again. F. W. THOMPSON.

Quincy, Ill., Oct. 20, 1885.

HAS USED TOBACCO 20 YEARS, AND ONLY 26 YEARS OLD.

After using tobacco twenty years I have quit, and never expect to use it again, although I am only 26 years old. If you think I deserve a smoker, please send me one; and if I take up the habit again I will pay for the same. G. B. ALLEN.

Rocky Hill Sta., Edmonson Co., Ky.

A "THOUSAND TIMES OBLIGED" FOR SO NICE A SMOKER.

I am a thousand times obliged to you for the smoker you sent me. It is more than I expected. Really, I did not look for a smoker at all. I did not know but it was like all the humbugs we read about. There are not many men who would give away an article that costs as much as that did, for the small sum of nothing. L. F. COUSINS.

Utica, Pa.

COMMENCED THE USE OF TOBACCO, BUT PAYS UP LIKE A MAN.

Inclosed you will find the cash for the smoker and tobacco contract which is due you. You sent me the smoker in good faith, and I commenced the use of tobacco again. I will pay up like a man.

Centreville, Ind., Jan. 1, 1886. B. C. NEFF.

GONE BACK TO TOBACCO, BUT PAYS FOR THE SMOKER.

As I have commenced the use of tobacco again, please find inclosed one dollar to pay for smoker you sent. I quit long enough to save more than the price of a smoker.

Here is my report for last season: 26 swarms in the spring; increased to 50 good swarms, got 198 lbs. of comb honey, and 1170 lbs. extracted, or an average of $52\frac{2}{3}$ lbs., spring count. EDWIN HUBBARD.

Oil City, Monroe Co., Wis.

A HARD STRUGGLE.

I have given up the use of tobacco. It was a hard struggle, but I have gained the victory. I think I am not as nervous as I was; and by the help of God, I hope I may never use it again. It is awful when a man puts himself down to be such a slave to such a filthy weed. C. M. HICKS.

Fairview, Md., Nov. 10, 1885.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS is a welcome visitor. I would not do without it for thrice its cost. E. E. BENDER.

Aspen, Adams Co., Pa., Feb. 8, 1886.

YET TO FIND FAULT.

I have yet the first time to find fault with a single article I have purchased from you. All proved perfectly satisfactory. FRANK MURRILL.

Bonsacks, Va., Dec. 26, 1885.

THE A B C CHEAP AT DOUBLE THE PRICE.

The A B C book came safely to hand yesterday, and I must say that I was surprised to see so large a volume for only $1.25. I consider it cheap at $2.50.

Pharisburg, Va. T. T. PHLEGAR.

GLEANINGS FULL OF NEW IDEAS.

I have taken GLEANINGS for the past two years. My time expired Dec. 15. I did think I would drop it for this year; but as there are so many new inventions and ideas coming up, I guess it will be for my interest to have it continued.

Fair Haven, Rutland Co., Vt. E. L. WESTCOTT.

OUR MODE OF PACKING.

The trunk and contents arrived to-day, with every thing safe and sound. I much admire the neat and safe packing of the goods. I think you must have an experienced hand at the packing business, as I never have had goods packed so neatly and securely. Accept thanks for your promptness.

Bowman, Ga., Feb. 1, 1886. J. D. BROWN.

THE QUEEN A LIVELY ONE.

The queen you sent last June came all right. She was a lively little thing; for when I let her loose on the comb she ran clear to the bottom of the hive before she slacked her motion. She changed the whole colony in about two months, from blacks to yellow-banded workers. Thank you for your promptness. A. J. SHEPARD.

Walker, Linn Co., Iowa, Jan. 22, 1886.

A FEW MORE OF OUR 20-CENT SHEARS.

I want a few more pair of those 20-cent shears, to finish supplying my neighbors. I have already had eight pair. Nearly every one who sees them wants a pair. I have made out an order for the shears and a few other articles from your counter. ADELBERT COOK.

Norwich, Chenango Co., N. Y., Feb. 8, 1886.

THE PARKER FOUNDATION-FASTENER.

I read the essay you gave at the Detroit convention, with much interest and entire approval, but could hardly see how you overlooked a cheap foundation-fastener. Last year I bought of James Heddon a Parker foundation-fastener at 25 cts., which I understood came from your shop, and I could better afford to buy one every week during the busy season than to do without one. O. B. BARROWS.

Marshalltown, Ia.

SOME KIND WORDS FROM ONE WHO IS NOT A BEE-KEEPER.

I am a stranger to you; but Mr. Woolley is a member of our family, and takes GLEANINGS. I read Our Homes and Myself and My Neighbors, and write to thank you for them. We live in the big woods, and have very little preaching, so it is doubly welcome. I am an English woman, and send kind regards to you and wife and family. Please accept best wishes, both temporal and spiritual. MRS. S. A. SHALE.

Kingston, Minnesota, Dec. 4, 1885.

[May God bless you, my good friend, for your kind and encouraging words. My dear wife is one of old England's daughters, and I am sure she will be glad to know that my efforts have been helpful to those who are deprived of the regular preaching of the gospel. May the Lord be with you and all your friends in your far-away home.]

THE STORY OF THE BIBLE.

Will you please send to my address a copy of "The Story of the Bible"? I sent for one a year ago, and my little niece has taken such a fancy to it that I wish to make her a present of one.
EMILY JENKINS.
Milan, Ill., Dec. 14, 1885.

OUR JOB WORK GOOD.

The circulars received—an exceedingly neat, a *perfect* job. Let me thank you, especially for the reduction in price, the printed matter being less than you at first thought there would be, and at first quoted for. You could have made the additional $4,00 out of me without my ever knowing any better. If you act in that way as a rule, you are certainly an honest man.
OSCAR F. BLEDSOE.
Grenada, Miss., Feb. 15, 1886.

WHAT THE EDITOR OF THE POULTRY AND FARM JOURNAL THINKS OF GLEANINGS.

Your Jan. GLEANINGS is at hand. I gladly put you on the exchange list, and forward Jan. *Journal* to-day. I am greatly pleased with Ira D. Granger's words on 31st page; and with a journal whose impress is out-and-out for Christ, everywhere. Please accept my earnest congratulations to an editor who *mixes* religion into all his business. It is a good *leaven* to use.
T. T. BACHELLER.
Minneapolis, Minn., Jan. 29, 1886.

IT PAYS TO ADVERTISE IN GLEANINGS.

I find it pays to advertise in your *fresh* and *vigorous* GLEANINGS. My other "ad" in GLEANINGS cost me the trifle of sixty cents, and yet it brought me more clean profit than the best-paying postoffice in our town brings per year. It is a law of reason, that *the man who won't advertise his goods deserves to fail*. I had almost forgotten to say that the issue containing my "ad" was hardly out of the press before I began to have proposals. I believe your patrons are all live men, all in the front rank too.
G. A. FARRAND.
Rockport, O., Feb. 6, 1886.

A KIND WORD FROM FRIEND VIALLON, AND SOMETHING BESIDES.

I will ship one of my four-frame nuclei, between the 5th and 15th of April, 1886, to the bee-keeper who will have sent you the largest number of subscribers from January, 1886, to the first of April, 1886. Whoever he may be, he will not be sorry of the extra trouble taken to solicit subscribers for GLEANINGS.
P. L. VIALLON.
Bayou Goula, La., Feb. 9, 1886.

[Many thanks to you, friend V. Now, will those who apply for this premium name it when they send in clubs? Or if you have sent in any clubs already since Jan. 1, call our attention to the fact, that we may verify and put you on the list.]

GO ON IN THE GOOD WORK.

I inclose you one dollar for my next year's subscription. Go on in your good work, and God will bless you. You and I differ in some things; but you are honest, and honest men go to heaven. The one who has had the most advantages will have the most to answer for. If I have health and opportunity I will come to see you next year. I think a good talk with you would do me good. I have had many troubles and much tribulation, but have been blessed with a hopeful and courageous spirit, and a mind too active for a weak frame. I should esteem a man like you as a friend and neighbor, as a priceless boon. Pardon me for this.
GEO. E. HILES.
Hondo City, Texas, Dec. 3, 1885.

GLEANINGS A "CASKET OF SUCH GOOD THINGS."

The wrapper on my last copy of GLEANINGS informs me that my time expires with present number; and as I can not afford to lose a single issue, I haste to inclose one dollar for another year's subscription. I must say, that GLEANINGS is a most welcome visitor that never fails to come twice a month, with a casket of such good things that it is who will and who shall, among my wife, daughter, son, or myself, be the first to peruse its pages. May God bless and spare its noble-hearted editor for many long years to come, to send it forth as bread cast upon the waters, that may be gathered many days hence.
J. D. BROWN.
Bowman, Elbert Co., Ga., Dec. 25, 1885.

THE TIN TUNNEL FOR PUTTING UP BEES.

The goods I ordered of you were all received yesterday—nothing missing. You ought to see me in May, shaking bees through that tin tunnel, into cages to ship. I would not take $1.50 for my Morton's gold pen. I don't see how you can sell them so cheap. The gloves are large enough this time. I am all right for snow, or bees either.
W. A. SANDERS.
Oak Bower, Hart Co., Ga., Feb. 11, 1886.

OUR 35-CENT WHOPPER KNIFE.

I am proud to inform you that, after dealing with you for several years, more or less, I can heartily congratulate you on your honesty, integrity, and promptitude as a dealer in mercantile goods, and as a Christian gentleman. The last goods I ordered of you came to hand, giving the usual satisfaction. I make special mention of your knife, known as the "Whopper." It is just the knife for service, large and strong, well united, cheap; and as to metal, it is not to be surpassed by any knife. Since the first one came to us, several have been ordered; and all who get them are well pleased. Your steel shears have given the same satisfaction to all who got them. In fact, your way of dealing meets the expectation of all honest people.
NAT. T. DRAUGHON.
Clarksville, Texas, Dec. 10, 1885.

GOODS RECEIVED IN GOOD SHAPE.

The goods arrived in good shape, and give full satisfaction. Thanks. The A B C book is excellent, and I would not be without GLEANINGS, even if its price were $3.00 per annum. Last spring I caught the bee-fever, and it has been increasing ever since. I bought one colony of Italian bees. That single colony has given 210 lbs. of extracted honey, and has 4 daughters by artificial swarming. I tried to run the first swarm for comb honey, but had no success; they would not work in the sections, so I sent to you for an extractor. I got it, and it worked to a charm. I have adopted the improved Langstroth Simplicity hive. It is cheap, well made, and in regard to convenience it stands ahead of all sorts of hives I have seen. I winter my five colonies on their stands in good packing-cases, protected on the north and west sides by an eight foot-high board fence. They are all right so far.
T. H. DAHL.
Stoughton, Wis., Jan. 5, 1886.

A KIND WORD FOR THE WAY IN WHICH WE BIND BACK NUMBERS OF GLEANINGS.

I have just received the bound volume of GLEANINGS for 1885, in exchange for my old ones; and to say I am satisfied with the exchange hardly expresses it. I have been binding them myself heretofore, but will do so no more as long as I can get new ones so nicely bound for so low a price. I don't see how you can afford it; but if you can stand it, I think we ought to. Of course, every bee-keeper who is well posted, or wants to be, keeps his back numbers. There is great comfort and convenience in having them neatly bound; and when you can get a nice new volume for less than it ordinarily costs to get the old ones bound, every bee-keeper ought to have one of them. Where they can be sent by freight with other goods, the expense is insignificant.
J. A. GREEN.
Dayton, Ill., Feb. 9, 1886.

HOW $1.00 INVESTED IN GLEANINGS SAVED $5.00.

The editor's notice runs thus: "If I am correct, your subscription expires with the present number," and then the question arises, "Have you found GLEANINGS a good investment?" Now, kind reader, I commenced bee-keeping in 1885 with three swarms, purchased the fall previous, and increased to eleven by natural swarming. My first swarm was two at once, and clustered in one place. With the assistance of GLEANINGS I caught one queen before the bees balled her, and then divided the bees and put them into separate hives, and they went to work, blacks and Italians, in both hives, all mixed up, and to-day I have them in the cellar, doing well. I think I saved five dollars, so I am under the impression that I did not make a bad investment. Some people count every thing by dollars and cents; but GLEANINGS has some things in it that I can not count on in that style, for which I highly prize it and subscribe for it once more.
G. STRANGWAYS.
Elora, Ont., Can.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 1, 1886.

Fear not, little flock; for it is your Father's good pleasure to give you the kingdom. LUKE 12:32.

BARNES' LATEST IMPROVED POWER BUZZ-SAW.

WILL those who have purchased these machines, please tell us how they work? If possible, how they work compared with the old style?

GREGORY'S LITTLE BOOK ON FERTILIZERS.

AFTER a hasty review of the sample copy sent us, we think the work is one that will prove of very much value to every one engaged in raising plants. See advertisement in this issue.

DISCOUNTS FOR THE MONTH OF MARCH.

THESE are the same as those given for February; namely, 10 per cent off on foundation, and 5 per cent off on sections; but only 2 per cent, instead of 3, additional, on orders received during the month.

MATTER FOR GLEANINGS.

AGAIN we find it impossible to find room for great numbers of good articles. Under such circumstances, we are compelled to use the best of our judgment in deciding what shall or shall not fill the pages.

SENDING US BEE-HIVES TO EXAMINE.

DON'T send me any more bee-hives without first writing me about them. We have not room to store them until we can write you, and I have not time to look them over, to pass an opinion on them. Besides, I do not believe we want any more hives than we have already. There are too many now. If you have something that is away ahead of any thing heretofore discovered, give me a rude sketch of it on a piece of paper. After looking at this, if I want to see the hive I will tell you.

ANOTHER BEE-JOURNAL.

A VERY pretty-looking journal on bees and poultry, called *Rays of Light*, is at hand. The name, certainly, is different enough from any other now in the field to prevent confusion on that score, and I don't suppose we shall ever have too many "rays of light" while the world stands. We have been a little backward lately about mentioning new journals, because so many start up, run a little while, and stop without even so much as making good their unexpired subscriptions. I have been wondering if it wouldn't be a good plan for new bee-journals to give some reference in regard to their standing, and financial ability to keep the thing going for a whole year at least. *Rays of Light* comes from J. J. Martin & Co., North Manchester, Ind., who is quoted by Bradstreet as having means and ability to publish at least a 50-cent magazine.

MUTH'S COLD-BLAST SMOKERS.

OUR old friend Muth has started something new in the way of a smoker having a bellows made of tin, so the smoker is all tin except the leather. This all-metal cold-blast smoker is much like ours in appearance, except the material of which the bellows is made. Price 50 cts., or five for $2.00. By mail, 25 cts. extra. An improvement on this, which he calls the "Perfection," has a valve in the bent air-tube, to prevent the smoke from being drawn back into the bellows. Price of the Perfection, 75 cts.; five for $3.00; either of the above, 25 cts. extra when sent by mail. The third is a muzzle feeder, something on the style of Bingham's. The fire-pot, also, has an extra covering of tin, to prevent burning the fingers. Price of muzzle feeder, $1.25, or five for $5.00. By mail, 35 cts. each extra. We can furnish them at the above figures.

NICE HONEY FOR ONLY 7 CTS. PER LB.

ONE of the bee-friends has just sent us a beautiful lot of honey in sap-pails, and he wants the pails right back for sugar-making. A good part of the honey is clover, but is flavored more or less with basswood, and it is *beautiful thick honey*. To close it out at once, he offered it at such a low price that I can send you a 58-lb. iron-jacket can full at only 7½ cts. per lb., or an even $4.25 for the whole package (the iron-jacket can being worth 58 cts.). If you will take two cans full, you may have it for only 7 cts. per lb., or an even $8.00 for the whole 116 lbs., *cans included*. Of course, this offer is for immediate orders. Sample free on application.

P. S.—We have just secured two barrels of raspberry honey, which we will sell at the same price as the above; or if you will take a whole barrel of 46 gallons, we will make it 6½ cts. No charge for the barrel. Sample of the latter, also, free on application.

A CRATE TO HOLD SECTIONS ESPECIALLY FOR THE CHAFF HIVE.

WE are now making a crate of this description on the J. E. Moore plan. It holds 32 regular Simplicity sections, or 36 7-to-the-foot sections. Of course, this style of crate does not admit of the use of separators. The price of the crates, made up, is 20 cts. Two of them fill the upper story of a chaff hive nicely, taking 64 ordinary sections, or 72 7-to-the-foot sections. Now, although this arrangement takes nearly the same number of sections as the wide frames, the expense of the arrangement is considerably less. As to whether we would advise this in preference to the arrangement of wide frames, we can not answer. The J. E. Moore case has been received with considerable favor, and doubtless many will prefer the arrangement. One good thing in their favor is, that you can get at the lower story so much easier, having only two cases to remove instead of ten wide frames. We can furnish the above in the flat at the same price as the regular S. size; viz., 1, 16c; 10, $1.35; 100, $12.00.

BASSWOOD-TREES, DIFFERENT SPECIES.

IN Ellwanger & Barry's illustrated catalogue of ornamental trees for 1886, you will find mentioned 14 different varieties of basswood, or linden. I was at first tempted to order a tree of each kind, to test them for honey; but a good many of them cost a dollar apiece, so it would be a somewhat expensive experiment. The distinguishing features, as I understand it, are the shape and size of the leaf, and the color of the buds and young branches. In planting our basswood orchard, some twelve years ago, I noticed we found little trees in the forest, some of which were red and others yellow; so it seems to be an accidental and common feature; and if the trees are in no way different, except the color of the bark, which is quite probable, it will not be worth our while to make the experiment. The white-leaved weeping linden, or the cut and fern lindens, are ornamental trees for the lawn or dooryard. The same catalogue gives two different kinds of tulip, or whitewood trees; namely, the common and variegated leaved. Now is the time to order basswoods, if you are intending to put them out this spring. See prices in our new price list.

REDUCTION IN THE PRICE OF SAP-PAILS.

As the sugar-making season is approaching, sap pails and spiles will be needed soon. We are pleased to tell you that the price of these has declined. We can furnish sap-pails, made of IC charcoal tin, 10 qt., for $14.00 per 100; 12 qt., $15.00. IX charcoal, 10 qt., $16.00; 12 qt., $17.50 per 100. Sap-spiles, best retinned, at 10 cts. per doz.; 75 cts. per 100, or $7.00 per 1000. The spiles can be sent by mail for 6 cts. per doz., or 45 cts. per 100, extra. Wooden sap-pails. $12.00 per 100. These are put up in packages of one dozen each; and in every dozen there are two pails with bails. The rest have no bails.

Three-eighths-inch bits for tapping trees, 15 cents each; postage, 3 cts. extra. Brace for same, with set-screw, 20 cts.; 18 cts. extra for postage, if sent by mail. Brace with patent grip, 50 and 75 cts., according to size. Gallon syrup-cans, guaranteed not to leak, $1.20 for 10, or $11.00 per 100. Oblong tin pans, for making maple-sugar bricks, $2.75 per 100.

Please note that the law now requires that the name of the person who puts up maple syrup must be put on the package in letters not less than one inch high, and three-eighths of an inch wide. We are prepared to print labels in accordance with the above law; and where desired we can paste them on your cans, so you have nothing to do but to fill them with syrup.

REDUCTION IN THE PRICE OF BEE-SUPPLIES, ETC.

MARCH 1, 1886, your humple servant, A. I. Root, is enjoying himself with the "New Agriculture." You see, we take the exhaust steam, after it has warmed our buildings, and put it down through those stone reservoirs I told you about on page 58, and it has made the ground warm enough so we are setting out all kinds of hardy plants, and making them grow as in June. When there comes a zero freeze, we have to put a sash over them. Sash is a great deal better than any kind of cloth covering, especially for a hard freeze. Ernest and John, with the help of a great lot of other of *your* friends, are taking care of the journal and the price list. Perhaps that accounts for the large department of Kind Words that appears in this number. They thought they were all right, and so I let them go. And, by the way, Ernest and John and these other friends have been figuring on the cost of a great many of these things we make for you, and have declared so positively that the goods can be sold cheaper, that I have consented to a big reduction in the price of many things in our price list. The reduction is so great, in fact, that we have decided to mail a new price list to every one of our subscribers. This will be done just as soon as this journal goes to press. In fact, we have got it out a little ahead of time with that very end in view.

We have received, during the month of February, 401 new subscribers; but during this time 358 have expired and have not renewed, so we are only 43 ahead, making 5024.

A NEW EDITION OF THE A B C BOOK.

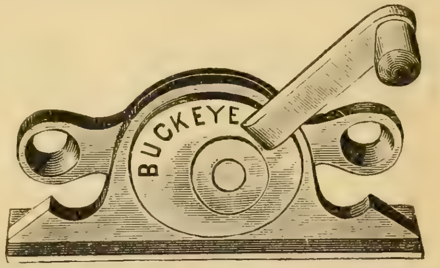
THIS is now out of the press, making the 27th thousand. It contains mention of almost every thing of importance up to the present date, even including a notice of Heddon's new hive, as well as cuts and descriptions of his hive of a year ago. As we said before, if you already have an A B C book, and sell it to somebody for half price, we well sell you a new one for the money you get; that is, the new edition will be half price to those who have recently purchased the edition before it.

BUCKEYE SASH-LOCK

A Device to Fasten Windows up or Down, Or at Any Point.

Something Effective, although Low in Price.

For many years I have been trying to get something better to hold a window up than a stick or a book, or something of that sort; but although we have tried them, even paying as high as 75 cents per window, I have never had any thing please me so well as the little device illustrated below.



This device holds the sash securely by friction in any desired position, as tight as if it were in a vise. It prevents the sash from rattling, and excludes the dust by making tight joints, and yet it does not mar the wood. It is put on with two screws, and can be fitted by an inexperienced hand in three minutes. It works equally well in upper or lower sash, with or without weights. Printed instructions are furnished with each one, as well as screws to fasten them on with, and yet the price is only 5 cts.; 10 for 48 cts.; 100 for $4.00. If wanted by mail, add 3 cts. each extra. The little device is the invention of one of our Medina Co. boys.

A. I. ROOT, Medina, O.

15 PLYMOUTH-ROCK EGGS by express for $1.00.
579d S. A. DYKE, Pomeroy, Ohio.

STRAWBERRY PLANTS, $1.00 per 1000, by exp. Pure Crescents, Downings, and Kentuckies, 1 doz., 20c; Russian Mulberry-trees, 5c; three for 10c. Bokhara clover, and mustard seed, 5c per oz. Free by mail. A. FIDDES,
5d Centralia, Marion Co., Illinois.

SPIDER-PLANT Seeds at $1.50 per lb.; ¼ lb., 40 cts.; 15 cts. per oz. by mail. W. A. SANDERS,
5d Oak Bower, Hart Co., Ga.

FOR SALE. At Grand Bay, Ala., on L. & N. R. R., 25 colonies of hybrid and Italian bees, in two-story Simp. and Viallon hives—the lot together at $5.00 each, as they stand. House and two acres of land also for sale. 5tfdb
J. J. DAVIDSON, 268 Magazine St., New Orleans, La.

100 COLONIES OF *ORANGE-COLORED ITALIANS*
—AND—
WHITE-BANDED ALBINO BEES
FOR SALE.

THOSE IN WANT OF BEES, QUEENS, OR APIARIAN SUPPLIES WILL DO WELL TO SEND FOR MY 26TH ANNUAL PRICE LIST BEFORE PURCHASING. ADDRESS

WM. W. CARY,
Successor to WM. W. CARY & SON,
4tfdb *Coleraine, Mass.*

N. B.—The best testimonial I can give is, that my trade has more than doubled in the past three years.

STRAWBERRY PLANTS.

I will sell, from now until May 1st, in lots not less than 3000, packed and delived at express office.

Pure Crescent	$2.00 per 1000
" Sucker State	3.00 " "

4-5-6d C. F. TYSON, Centralia, Marion Co., Ill.

DUNHAM AND VANDERVORT FOUNDATION

We have a large stock of choice yellow beeswax, and can furnish Dunham comb fdn. for brood comb, cut to any size for 42c per lb. Extra thin Vandervort foundation, 48c per lb. We guarantee our fdn. to be made from pure beeswax, and not to sag. Will work up wax for 10c per lb., and 20c per lb. for section. **F. W. HOLMES,**
4tfdb Coopersville, Ottawa Co., Mich.

PURE ITALIAN BEES.

Full colonies, nuclei bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. ☞ Send for my circular and price list. You will save money by so doing C. M. DIXON,
4-11-db PARRISH, FRANKLIN CO., ILL.

A BARGAIN.

As I am going to move my apiary, I will sell 50 colonies of bees more at a bargain; 25 colonies Italians, with tested queens, from imported mothers; 25 colonies hybrids. Also untested Italian queens from imported mothers, and bees by the pound, for sale. Send for special prices, stating how many are wanted. Address W. S. CAUTHEN,
4-5-d Pleasant Hill, S. C.

ALL PROGRESSIVE BEE-KEEPERS

Suffer for my price list of Bee-keeper' Supplies of all kinds. Send for price list and be convinced.
J. W. BITTENBENDER,
4-9db KNOXVILLE, MARION CO., IOWA.

For Sale. I have a Root $25.00 fdn. mill, bought about three years since, almost as good as new, with dipping-tank and all complete. They cost me, when new, $27.50, and $7.00 duty. I wish to sell them, and will take $18.00 for them. A. W. WILLOWS,
4tfdb Carlingford, Ontario, Canada.

BASSWOOD-TREES.

Basswood-trees, 1 to 3 feet high, per hundred,	$1.50
Hard Maple " 3 to 5 " " " "	1.50
Black-raspberry plants, 7 different kinds, per hundred, $1.00; per thousand	6.50

Address H. WIRTH, Borodino,
3-5-7d Onondaga Co., N. Y.

FOR SALE.—20 Colonies Italian Bees on 7 L. frames, in shipping-box, $7.00 each. Eggs from purebred S. C. Brown Leghorn fowls (Bonny's strain), $1.00 for 15. 567d T. O. KEATOR, Accord, N. Y.

GOOD NEWS FOR DIXIE!
SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

BEE-KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, 48 pages; FREE to all bee-keepers sending address to
3tfdb JOS. NYSEWANDER, Des Moines, Iowa.

SIMPLICITY HIVES, SIMPLICITY FRAMES
SECTIONS, SMOKERS, COMB FDN., ETC.

In fact, we manufacture and keep in stock every thing that live bee-men need, and at low rates. Write for price list, free. Address
KENNEDY & LEAHY.
3tfdb HIGGINSVILLE, LAFAYETTE CO., MO.

Look! Honey-Comb Foundation! Look!

FRIENDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills; heavy, 45 cts. per pound; very thin, for comb honey, 10 cts. more per pound; 10% discount on all orders received before April 1st. Send for free samples. Address
C. W. PHELPS & CO.,
4-5d TIOGA CENTRE, TIOGA CO., N. Y.

ITALIAN BEES AND QUEENS,
Full Colonies, NUCLEI. AND QUEENS, CHEAP. *Send for Circular.*
C. C. VAUGHN, *4tfdb* COLUMBIA, TENN.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3btfd

GREAT REDUCTION. OUR ONE-PIECE Good as THE BEST!
V-GROOVE ❁ SECTIONS,

SMOOTH ON BOTH SIDES, AT $3.50 PER 1000.
FOR LARGER LOTS, WRITE FOR PRICES.
A. M. MURRAY & CO.,
4-5 6d **Goshen, Elkhart Co., Ind.**

ONE MOMENT, PLEASE.

It will pay you to send for my circular. A choice lot of my noted strain of Italian bees and queens for sale cheap. My bees work largely on **Red Clover.** I challenge the world on **Fine Bees and Queens,** also fine large English Rabbits.
F. BOOMHOWER,
3-5d **Gallupville, Schoharie Co., N. Y.**

UNTESTED QUEENS, reared from BEST IMPORTED nuclei, and full colonies.
3-5d N. ADAMS, Sorrento, Fla.

HAVING again located at Nappanee, I shall be better prepared than ever to furnish bees and queens the coming season to my many friends and customers, as I have a large apiary of Syrian bees in the South, and one of pure Italians here, to draw from. Send for price list.
3-5d I. R. GOOD, Nappanee, Ind.

BEE-KEEPERS! If you are in need of hives, sections, comb fdn., honey-extractors, bees and queens, or any implement used in the apiary, send for price list to J. SWALLOW, 2816 Mo. Avenue, St. Louis, Mo. Successor to Buck & Swallow. 3-5d

THE

Apicultural Establishment

OF

F. J. DOKOUPIL,

In Vigaun, Upper Carniola,
Austria, Europe,

Send QUEENS postpaid. Safe arrival and purity of breed guaranteed.

Price each in German Reichsmark.

	Apr.	May.	Jun	Jul.	Aug	Sep	Oct
Carniolan Queens, Native,	8	7	6	5	5	4	4
Italian Queens, Native,	9	9	8	7	7	6	6
Cyprian or Syrian Queens, Native,	20	20	20	20	18	18	18
Cyprian or Syrian Queens, bred in Carniola,	12	12	11	11	10	10	10

579db

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

75 COLONIES OF BEES FOR SALE.
Address **J. S. Baxter,**
1tfdb **Corinth, Alcorn Co., Miss.**

FOR SALE. Cigar-box planer, Root saw-table, 10 saws, grooving-table, 2 sets of saws, shafting and pulleys, all good as new, used two years; give us an offer; must be sold. Also 60 colonies of my improved Italian bees, in two-story chaff hive, at $8.00 per colony. A Given fdn. press and wiring-machine, for $25.00. A lot of 2-story chaff-hives, tin roof, with 2 crates, $2.50 each; former price, $5.00; 100 smokers, Clark's, at 25 cts. each; $22.00 per 100; 1000 Simplicity wired frames at $1.00 per 100; 1000 in flat, at 75 cts. per 100.

4tfdb **GEO. F. WILLIAMS, NEW PHILADELPHIA, O.**

PLYMOUTH ROCKS a specialty. No other fowls kept for 6 years. Eggs, $1.50 per 13; $2.50 for 26.
4-5d S. S. JORDAN, Hiramsburg, Ohio.

SUMNER & PRIME,

BRISTOL, ❋ VERMONT.

—MANUFACTURERS OF—

Bee-Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and samples free.
1-2tfdb

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, Germantown, Philadelphia, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic FallsMaine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

FOR SALE.

One second-hand fdn. mill that will roll sheets 14 inches wide. The mill is at present in New Hamburg, Ont., Can. The original price on it was $40.00, but we will now sell it at half price, or $20.00.

Also one exactly like it, owned by W. W. Bliss, of Duarte, Los Angeles Co., Cal. There is nothing wrong with these mills, except that the rolls are of smaller diameter than those we now make, in consequence of which they do not make quite so thin fdn. right in the middle of the rolls as those made now with rolls of a larger diameter. They will, however, roll narrow sheets equal to any, and will roll sheets a foot wide; but when of so great a width, the center is a trifle thicker, as explained above.

Also one 9-inch Dunham mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $20.00. The list price of a new mill of this kind is $40 00. **A. I. ROOT, Medina, O.**

BeeKeepers
Supplies
WHOLESALE & RETAIL.
E.T.Lewis TOLEDO OHIO.

Orders filled the day they are received, except for bees and queens. 4tfdb

GREAT REDUCTION IN PRICES.

Our beautiful all-in-one-piece sections, smooth inside and out, at $4.00 per 1000. For larger lots, write for prices. Send for price list of other supplies.
M. H. HUNT,
2 tfdb BELL BRANCH, WAYNE CO., MICH.

FOUNDATION, WARRANTED FIRST CLASS. | **SECTIONS,** OF FINE QUALITY.

Samples and reduced price list of supplies, *free*.
J. D. GOODRICH,
3-5-7-9-11—19d EAST HARDWICK, CAL. CO., VT.

FOR SALE. 20 COLONIES ITALIAN BEES, on 7 Langstroth frames, in shipping-boxes, $4.50, or shipped in Parker chaff hive, $6.50 per colony.
WM. AMELANG,
3tfd Ottumwa, Wapello Co., Iowa.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error.

WANTED.—To exchange nice new apple-seeds for beeswax. M. ISBELL.
4-5d. Norwich, Chenango Co., N. Y.

WANTED.—To exchange, a home-made foot-power saw for bees. Write for particulars.
5tfdb. W. S. WRIGHT, Battle Creek, Mich.

WANTED.—To exchange Italian bees, queens and nuclei, for an extractor, supplies in the flat, and comb fdn. MISS A. M. TAYLOR,
4-5-6d. Mulberry Grove, Bond Co., Ill.

WANTED.—To exchange bees or eggs from Light Brahmas (Tees' Strain), for wire netting.
4tfdb. W. E. FLOWER, Ashbourne, Mont. Co., Pa.

WANTED.—To exchange new Novice honey-extractors for A. and L. frames; will exchange for a bone-grinder, or good books, or any thing useful. GEO. W. BAKER, Milton, Ind. 3-5-7-9-11-13d

WANTED.—To exchange for bees, or pure-bred poultry, 10,000 Mammoth-Cluster and Turner Raspberry-plants, $1.00 per 100, $6.00 per 1000; also 20,000 Strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale; 75 cts. per 100; $4.00per 1000.
5d W. J. HESSER, Plattsmouth, Neb.

WANTED.—To sell or exchange new Heddon hives, reversible frames, 17⅝x9⅛; also Plymouth Rocks, for extracted honey, Michigan quart berry-boxes, Jewell strawberries, Nemeha, Golden queen, and Shaffer raspberry plants, and pruning-shears.
4-5 E. J. SCOFIELD, Hanover, Rock Co., Wis.

WANTED.—To exchange or sell. Friends, I have 15 pairs of the celebrated Bonney's stock of Brown Leghorns that I will sell at $3.00 per pair, or will exchange for good beeswax at 25 cts. per pound. Circulars free. Ref., A. I. Root.
24tfdb A. H. DUFF, Creighton, Guern. Co., O.

WANTED.—To exchange strawberry and raspberry plants for $1.00 or tested queens, or pounds of bees (in spring). Address 21tfdb
C. W. PHELPS & Co., Tioga Centre, Tioga Co., N. Y.

WANTED.—To exchange Italian bees or queens for ferrets, Wyandotte pullets, or eggs for hatching; also one or two pair of fancy pigeons. Stock must be first-class. F. BOOMHOWER,
5d Gallupville, Schoharie Co., N. Y.

WANTED.—To exchange, telegraph instruments, keys, relays, and sounders, for bees.
5d E. F. WILCOX, La Grange, Lorain Co., O.

WANTED.—To exchange bees for a Barnes-saw, foundation-mill, or Light Brahma fowls; or I will sell bees by the pound; also queens in season.
JAMES P. STERRITT,
5-6-7-8d Sheakleyville, Mercer Co., Pa.

WANTED.—To exchange Simplicity hives for a circular-saw mandrel for hive-making by steam power. Will sell hives (in the flat) cheap for cash, or will take one-third pay in full colonies of bees. Hives in any quantity to suit customers, up to a carload per day. G. A. FARRAND,
3tfdb Rockport, Cuyahoga Co., O.

WANTED.—To exchange for a farm, or sell my place, consisting of 7½ acres of ground in the town of Lewisville, Ind. A small dwelling, poultry-houses, stable, and an everlasting gravel-bank, which affords about 3000 loads of gravel every year, which sells readily at from 10 to 15 cts. per load. The place is in a good honey locality, and good shipping facilities. Apiary slopes to the south and east; is surrounded on the north and west by a tight plank fence, about 7 ft. high. Apiary is set in grapevines. I will give five years' time, if sold. Direct all communications to
3-5-7d GEO. W. BAKER, Milton, Ind.

WANTED.—To exchange Brown Leghorn eggs for hatching, S. C., for foundation, also for sale; $1.00 for 13; 30 eggs for $2.00; 75 eggs, $4.00.
5d R. J. NASH, Williamson, Wayne Co., N. Y.

WANTED.—To exchange foundation for wax.
5tfdb B. CHASE, Earlville, Madison Co., N. Y.

WANTED.—To exchange large, good piano for bees; also pure-bred B. Leghorn and Partridge Cochin eggs, for bees by the pound.
5 6d L. HARRIS, Box 304, Greenville, Ill.

WANTED.—To exchange berry-plants for 1 dozen warranted Italian queens from the South. Will also take supplies. See our small-fruit and poultry circular, free. S. P. YODER,
5d E. Lewistown, Mah. Co., Ohio.

WANTED.—To exchange, Apiarian supplies for Italian bees. Circular free.
5d L. J. TRIPP, Kalamazoo, Mich.

WANTED.—To exchange Italian bees or queens, or comb fdn., made on the Given press, for a second-hand engine, 1 or 2 horse-power.
5d L. HEINE, Bellmore, Queens Co., N. Y.

WANTED.—To exchange, telegraph instruments, new, and silverhull buckwheat, for supplies, bees, or offers. C. D. MANVILLE,
5d La Grange, Ohio.

FOR SALE. Italian Bees, 10 Langstroth frames, $7.00 per colony; 2 for $13 00; 2 frame nucleus with queen, $12 00. JANE E HUNTINGTON,
5d MILLBORO DEPOT, BATH CO., VA.
(Formerly of Cotton Hill, W. Va.)

SUPPLIES VERY CHEAP!

ITALIAN BEES, BEE-HIVES,

SECTIONS, FOUNDATION, EXTRACTORS, SAW-MANDRELS, ETC.

As I manufacture all kinds of supplies, I can sell very cheap. **E. Y. PERKINS,**
5tfdb **Jefferson, Greene Co., Iowa.**

CLOSING OUT!

Desiring to move about Apr. 1, I shall sell and deliver at depot, before that time, 32 colonies of Italian and hybrid bees in 2-story Simplicity hives, 20 L. frames, at $5.00 each. Also one Novice Honey-Extractor, L. frame, and knife, for $5.00. One Barnes combined circular and scroll saw, with 2 saws, one emery wheel, counter-shaft for power, and all the necessary guages, for $25 00. Cost $50.00. As good as new. Orders must be in by March 20, or I will sell at auction. Safe arrival guaranteed.

5d **J. H. Reed, Orleans, Orange Co., Ind.**

PURE ÷ ITALIAN ÷ QUEENS

BRED FROM AN IMPORTED MOTHER,

Sent by mail; safe arrival guaranteed, from April until October, Tested Queens, $1.50; Untested Queens, $1.00; per dozen, $8.00. Satisfaction guaranteed, or money refunded. 5 7-911-13d
Walter McWilliams, Griffin, Ga.

LOOK ÷ HERE.

What you can get for $3.00. A 3-frame nucleus on L. frames, containing two frames of brood, Italian queen, frames covered with bees: 75 Italian queens will be sent to fill first orders. Such nuclei as I send will not only grow into strong colonies, but will doubly pay all expenses with surplus honey. A great many customers have reported over $8.00 from each nucleus. If you want full colonies, or bees in any form *except* by the pound, write me before ordering elsewhere. Orders will be filled from the 25th of May to June 15. 5tfdb

DAN WHITE, New London, Huron Co., O.

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Wanted, Orders for Fdn.

At 45 cts. for heavy, 55 cts. for light. Wax worked. Tin Points, $1.00 per 5000. Basswood-Trees, 1 to 3 ft. high, $1.50 per 100; 5 to 8 ft., $4.00. Basswood seed, $1.00 per 1000, postpaid; also Wire Nails, Smokers, and Extractors. Send for Circular. 10% discount on all cash orders received before April 1st.

CHAS. STEWART,
67d **Sammonsville, Fulton Co., N. Y.**

ITALIAN AND SYRIAN QUEENS,

Before June 15, tested, $3.00 each; untested, $1.00 each. Later tested, $2.00 each; untested, single queen, $1.00; six for $5.00; twelve or more, 75 cts. each. Untested queens warranted purely mated.

I. R. GOOD, Nappanee, Elkhart Co., Ind.

BEES IN IOWA. — SEE FOSTER'S — **ADVERTISEMENT.**

JUST OUT.

New BooK

—BY—

JAMES HEDDON,

DOWAGIAC, MICH.

Send your address for his

PROSPECTUS

—AND—

2tfdb **1886 CIRCULAR.**

ITALIAN QUEENS,

	March	April May	June July
Untested queens, - - - -	$1.50	$1.25	$1.00
Tested queens, - - - -	3.00	2.50	2.00
Two-frame nuclei, no queen,	4.00	3.00	2.50

3-6db Dozen rates on application.

ANNA M. BROOKS, SORRENTO, ORANGE CO., FLORIDA.

RUBBER CEMENT, FOR MENDING RUBBER BOOTS, RUBBER SHOES, and all kinds of rubber goods. An article worth its weight in gold, for the saving of health, annoyance, and trouble. Printed directions for use accompany each bottle. Ten cents per bottle; ten bottles, 85c; 100, $8.00. A. I. ROOT, MEDINA, OHIO.

BURPEE'S SEEDS, FARM ANNUAL FOR 1886

Will be sent **FREE** to all who write for it. It is a **Handsome Book of 128 Pages**, with hundreds of new illustrations, two **Colored Plates**, and tells all about **the Best Garden, Farm** and **Flower Bulbs, Plants, Thoroughbred Stock** and **Fancy Poultry.** It is the only complete catalogue of the kind published, and describes **RARE NOVELTIES** in **VEGETABLES** and **FLOWERS**, of **real value**, which can not be obtained elsewhere. Send address on a postal to

W. ATLEE BURPEE & CO., PHILADELPHIA, PA.

PURE ✣ ITALIANS ✣ EXCLUSIVELY.

STOP, ✻ READ, ✻ AND ✻ ORDER.

Having determined to devote my time and attention exclusively to the production of pure Italian bees and queens, during the season of 1886, I offer, in order to reduce stock, **50 Choice Colonies of Pure Italians** in 10 Langstroth frames, guaranteed to contain at least 4 full frames of brood and 4 lbs. of bees in new chaff hive, at $10.00 each. I append my prices for the season.

My terms are cash with the order. First orders will be filled first. I will refund money at any time a customer may become dissatisfied with waiting.

My methods: One kind, and the best of that kind. Nothing except tested queens sold at any price. I will send one-year-old queens until stock is exhausted, and then this season's hatch. I will commence to send, about May 1st.

1 tested queen..................................	$1 00
1 pound of bees	1 00
1 frame of brood and bees..................................	1 00
1-frame nucleus, tested queen	$2 00
2 " " " "	3 00
3 " " " "	4 00
4 " " " "	5 00

In lots of 5, five per cent discount; in lots of 10, ten per cent discount. In lots of 10 or more nuclei or pounds of bees, I will pay express charges for the first 1000 miles. Now remember, I guarantee safe arrival and absolute satisfaction in all cases. Sample of live workers free by mail. Capacity, 25 queens per day after May 1st.

I append a few from hundreds of recommendations from last season's customers.

Sodus Point, N. Y.
I am very much pleased with the tested queen I got from you last summer. JAY S. SEELEY.

Port Dover, Ontario, Can.
I believe I can make arrangements with you for queens next spring, as what I have got from you please me very well. R. M. TAYLOR.
LATER.—*I will give you my trade for queens for 1886.* R. M. T.

Mill Point, N. Y.
Queen arrived in fine condition, and I am well pleased with both queen and bees. PETER KLINE.

Penetanquistan, Ontario, Canada.
Queen received all right, and alive. She is a noble-looking queen, and pleases me better than any I have yet received. H. T. LEACH.

THOMAS HORN,
BOX 691, SHERBURNE, CHENANGO CO., N. Y.

100 COLONIES OF
ORANGE-COLORED ITALIANS
—AND—
WHITE-BANDED ALBINO BEES
FOR SALE.

THOSE IN WANT OF BEES, QUEENS, OR APIARIAN SUPPLIES WILL DO WELL TO SEND FOR MY 26TH ANNUAL PRICE LIST BEFORE PURCHASING. ADDRESS

WM. W. CARY,
Successor to WM. W. CARY & SON,
4tfdb *Coleraine, Mass.*

N. B.—The best testimonial I can give is, that my trade has more than doubled in the past three years.

STRAWBERRY PLANTS.

I will sell, from now until May 1st, in lots not less than 3000, packed and delivered at express office.

Pure Crescent	$2 00 per 1000
" Sucker State	3.00 " "

4 5-6d C. F. TYSON, Centralia, Marion Co., Ill.

DUNHAM AND VANDERVORT FOUNDATION

We have a large stock of choice yellow beeswax, and can furnish Dunham comb fdn. for brood comb, cut to any size, for 42c per lb. Extra thin Vandervort foundation, 48c per lb. We guarantee our fdn. to be made from pure beeswax, and not to sag. Will work up wax for 10c per lb., and 20c per lb. for section. **F. W. HOLMES,**
4tfdb Coopersville, Ottawa Co., Mich.

PURE ITALIAN BEES.

Full colonies, nuclei, bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. ☞ Send for my circular and price list. You will save money by so doing. C. M. DIXON,
4-11-db PARRISH, FRANKLIN CO., ILL.

ALL PROGRESSIVE BEE-KEEPERS

Suffer for my price list of Bee-keeper' Supplies of all kinds. Send for price list and be convinced.
J. W. BITTENBENDER,
4-9db KNOXVILLE, MARION CO., IOWA.

FOR SALE.—20 Colonies Italian Bees on 7 L. frames, in shipping-box, $7.00 each. Eggs from pure-bred S. C. Brown Leghorn fowls (Bonny's strain), $1.00 for 15. 567d T. O. KEATOR, Accord, N. Y.

GOOD NEWS FOR DIXIE!
SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

BEE-KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, 48 pages; **FREE** to all bee-keepers sending address to
3tfdb JOS. NYSEWANDER, Des Moines, Iowa.

50 COLONIES BEES FOR SALE.

I have 50 stands of bees for sale, hybrids and blacks, and in the Mitchell hive, 15 frames in hive, well painted, and metal rabbets. I live on the Arkansas Midland R. R., and can ship by R. R. or water via Helena. I will take $4.50 per stand, delivered on board train, and delivered by latter part of March. PETER METZ,
3-8db Poplar Grove, Phillips Co., Ark.

Look! Honey-Comb Foundation! Look!

FRIENDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills; heavy, 45 cts. per pound; very thin, for comb honey, 10 cts. more per pound; 10% discount on all orders received before April 1st. Send for free samples. Address

C. W. PHELPS & CO.,
4-5d TIOGA CENTRE, TIOGA CO., N. Y.

ITALIAN BEES AND QUEENS,

Full Colonies, NUCLEI, AND QUEENS, CHEAP. *Send for Circular.*
C. C. VAUGHN, *4tfdb* COLUMBIA, TENN.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3btfd

GREAT REDUCTION. Good as THE BEST!
OUR ONE-PIECE V-GROOVE ❋ SECTIONS,

SMOOTH ON BOTH SIDES, AT $3.50 PER 1000.
FOR LARGER LOTS, WRITE FOR PRICES.

A. M. MURRAY & CO.,
4-5 6d **Goshen, Elkhart Co., Ind.**

LOOK HERE.

New Factory, new Machinery. Having owned and handled bees for twenty-two years, I now offer

APIARIAN SUPPLIES

Of my own manufacture. Our specialty will be on one-piece V-groove buckeye sections. You can not guess how white and beautiful they are. We make hives to order, of all sizes and patterns, though the hive *we* use is the Scientific hive, made in sections six inches high, put together without nails. Also Frames and Sections. We claim that we can get more section-box honey from this hive than any hive we know of. For circular, address

5-6d **J. B. MURRAY, Ada, O.**

J. W. K. SHAW & CO.,
Specialists in Italian-Queen Rearing

We are prepared to fill orders for early Queens, tested or untested. A large number are ready for mailing. We hope to supply all demands made in the early spring, and all after, by return mail. Price $1.00; doz., $10.00. Tested, $2.00. Special rates to dealers. **Loreauville, Iberia Parish, La.**
5-6d

VANDERVORT
COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

Mirror, or Parti-scale Carp For Sale.

Spawners,	10 to 12 inches in length,	per	doz.,	$6.00
"	8 to 10 " " "	"	"	5.00
Small fish,	2 to 4 " " "	"	100,	5.00

W. H. CARPENTER,
3-6db Springboro, Warren Co., Ohio.

Eggs, $1.25 PER 13, from pure-bred, single-comb Brown Leghorns. Unexcelled layers. Address H. B. GEER, Nashville, Tenn., or E. W. GEER, St. Mary's, Mo. 3-8db

QUEENS. 1886. QUEENS.

Reared from Imported Mothers. Two, three, and four frame nuclei. Safe arrival and satisfaction guaranteed. Send for price list. Address
5-11db FRANK A. EATON, BLUFFTON, OHIO.

HONEY AND BEESWAX.

Our market, and location as a trade center, the rapid growth of our city and country, gives us a large demand for honey. We have found it impossible to keep a stock of 1-lb. frames, unglassed, and of which we are in need. This style of comb sells much faster than any other and we will make liberal offers on receipt of samples. We are well stocked on 2-lb. sections, also extracted. Beeswax wanted on commission. **CLEMONS, CLOON & CO.,**
KANSAS CITY, MO.

BEE-HIVES, SECTIONS, COMB FOUNDATION,

AT GREAT REDUCTION.

DEALERS AND LARGE CONSUMERS WILL FIND IT TO THEIR INTEREST TO WRITE FOR PRICES FOR 1886.

JOHN J. HURLBERT,
LYNDON, WHITESIDE CO., ILLINOIS.
2tfd

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To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2tfd **Hartford, Washington Co., Wis.**

FOR SALE. BIRD and WATER DOGS

ADDRESS **EUGENE HOYT,**
6-7tfd **Highland, Madison Co., Illinois.**

BEES IN IOWA. —SEE FOSTER'S— **ADVERTISEMENT.**

SUMNER & PRIME,

BRISTOL, VERMONT.
—MANUFACTURERS OF—

Bee-Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and samples free.
1-2tfdb

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers," 1tfdb

THE

Apicultural Establishment

OF

F. J. DOKOUPIL,

In Vigaun, Upper Carniola,
Austria, Europe,

Send QUEENS postpaid. Safe arrival and purity of breed guaranteed.

Price each in German Reichsmark.

	Apr.	May.	Jun.	Jul.	Aug	Sep	Oct
Carniolan Queens, Native,	8	7	6	5	5	4	4
Italian Queens, Native,	9	9	8	7	7	6	6
Cyprian or Syrian Queens, Native,	20	20	20	20	18	18	18
Cyprian or Syrian Queens, bred in Carniola,	12	12	11	11	10	10	10

579db

SECTIONS,

To nail, or dovetailed, per 1000, $4.50. Send 2-cent stamp for sample and price list. 4tfd
PARKER NEWTON, Earlville, Madison Co., N. Y.

TESTED QUEENS, $2.00; untested, $1.00. Wax-extractor, $3.00. Other supplies. Send for circular.
OSCAR F. BLEDSOE, Grenada, Miss. 4tfd

BEES & PLANTS.

20 stands of Italians at $5.00; and **20** stands of hybrids at $4.00 per stand, all in Simplicity hives of Root's pattern. Also pure Gregg, Cuthbert, and Turner raspberry-plants for sale at $1.00 per 100, or $8.00 per 1000. Address
567d **A. F. ROBINSON, Marysville, O.**

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

Here ❊ We ❊ Are ❊ Again

FOR 1886.

Bound to sell cheaper than the cheapest, Bees, Comb Foundation, Hives, Sections, and Apiarian Supplies in general. Don't fail to send for our Circular, right off. **G. W. ALBRECHT,**
5-6-7d **DUNDAS, WISCONSIN.**

SIMPLICITY & LANGSTROTH HIVES

All dovetailed Sections, Frames, Crates, Wire Nails, etc. Send for circular. **GEO. WHEELER,**
5tfdb **Norwich, Chenango Co., N. Y.**

SECTIONS

Dovetailed, or to nail; planed, or smooth sawed. Any size made to order. Sure to please you, and sold at the lowest price for good sections. Send stamps for samples and prices, stating size and quantity wanted. Any size of frame made to order, and shipping-crates in season. 5-6-7d
F. GRANGER & SON, HARFORD MILLS, CORTLAND CO., N. Y.

100 Colonies of Bees for Sale!

My 650 colonies of bees are more than I can well handle, and I will sell 100 full colonies at $5.00 each for hybrids, $6.00 for pure Italians. Discount on larger numbers. I will also sell a few colonies of Caucasian bees, which breed I imported from the Caucasus Mountains, Asia, in 1880, and have found them of great value to me. Address
JULIUS HOFFMANN,
5-6-7d **Canajoharie, Mont. Co., N. Y.**
(Formerly Ft. Plain, N. Y.)

HONEY COLUMN.

CITY MARKETS.

CINCINNATI. — *Honey.* — No new feature in the market. Demand is good for jar goods in the jobbing way, and fair for choice comb honey, but very dull for barrel goods from manufacturers. Arrivals are plentiful. We quote extracted honey, 4@8c a lb. on arrival, and choice comb honey at 12@15c a lb. in the jobbing way. There is a good home demand for *beeswax*, which finds a ready sale at 25c a lb. on arrival.

CHAS. F. MUTH & SON,
S. E Cor. Freeman and Central Avenues,
Mar. 10, 1886. Cincinnati, Ohio.

ST. LOUIS.—*Honey.*—The market is dull.

White clover in 1-lb. sections,	14@16c.
Spanish needle, " "	11@12½c.
Prime,	9@10c.
Dark, and broken comb,	7@8c.
Extracted, choice, in cans	8@9c.
" good " "	7@7½c.
" in kegs	5@7c.
" bbls., as to quality,	4@6c.

Beeswax, in fair demand at 22½@23 for prime. Dark, 1@5c less as to quality.

Mar. 11, 1886. W. T. ANDERSON & CO.,
104 N. 3d Street, St. Louis, Mo.

CLEVELAND.—*Honey.*—The market continues very good for best 1-lb. sections of white at 14 cts.; second, 12@13; 2-lb. sections are dull at 12@13. Old, 9@10, and moving very slowly. Extracted, 7@8.

Beeswax, 25. A. C. KENDEL.
Mar. 10, 1886. 115 Ontario St., Cleveland, Ohio.

BOSTON. — *Honey.* — 1-lb. sections, 13 @ 14; 2 lbs., 11@12; Slow sale. Extracted honey, 6@8. *Beeswax*, 28.

BLAKE & RIPLEY,
Mar. 12, 1886. 57 Chatham St., Boston, Mass.

CHICAGO.—*Honey.*—Market is in good shape here at present, and all that is here will be closed out soon. Choice comb honey brings 16c in 1-lb. frames; extracted, dull, but really without much change in price. *Beeswax*, 25c. Comb honey wanted.

R. A. BURNETT,
Mar. 10, 1886. 161 S. Water St., Chicago, Ill.

DETROIT.—*Honey.*—The market continues dull; no market change from last quotations. White, in pound sections, 13@14c. Commission houses think they will be able to close out present stock before new honey comes in. *Beeswax* in good demand at 25@27c.

M. H. HUNT.
Mar. 11, 1886. Bell Branch, Mich.

MILWAUKEE.—*Honey.*—This market is good for choice comb and extracted honey at this time, and the supply is not equal to the demand. We can encourage shipments, and quote as follows:

Very choice clover, 1-lb. sections,	17@18
Choice " " "	16@17
" " 1½ " "	15@16
Old or dark, slow sale.	12@14
Extracted, choice, *pure*, in kegs or bbls.,	7½@9

Beeswax wanted, 20@25c per lb. A. V. BISHOP,
Mar. 10, 1886. 142 W. Water St., Milwaukee, Wis.

HONEST SEEDS at HONEST PRICES.

☞ DIRECT FROM THE GROWER. ☜

Strawberry Tomato, or Ground Cherry, true seed,	.10
Cook's Imp'd Popping Corn, best in the world,	.10
Cook's Improved Lima Bean, " " "	.10
Chufas, or Earth Almonds, very hardy,	.10
Mammoth Russian Sunflower, best egg-food,	.10
Japanese Nest-Egg Gourd, a pretty climber,	.10
Chinese Yam, or Cinnamon Vine, 6 bulbs,	.10
Purple-Husk Tomato, true seed,	.10
Mixed Flower Seeds, over 200 choice varieties,	.10
☞ All the above choice seeds sent postpaid for	.50

☞ SPECIAL INTRODUCTION BOX of seeds for Family Garden; viz., 25 Packets well filled with the best seeds, mailed for only 65 cents. TWO for $1.00.

Stamps taken. Address A. T. COOK, Seedsman,
Clinton Hollow, Dutchess Co., N. Y.
[Mention this paper.] 6-7d

SECTIONS.

THE CHEAPEST YET.

One-Piece Grooved Sections, $3.00 per 1000.
Ten Thousand or more, $2.50 per 1000.

Address **CHAS. S. BEEBE,**
678d **Baltimore, Md.**

200 COLONIES OF ITALIAN & HYBRID BEES FOR SALE. Having more Bees than I desire to keep at present, I offer a portion of them for sale. I have always made a specialty of producing fine comb honey, and my bees have made a good record. Average in 1885, over 100 lbs. per colony, spring count, nearly all comb. For price, state number of stocks wanted, and address

W. D. WRIGHT,
6d **Knowersville, Albany Co., N. Y.**

1886 NORTHSHADE APIARY, 1886

PRICES GREATLY REDUCED.

Full colonies of Italian bees for spring delivery. Nuclei, queens, and bees by the pound for the season. Comb foundation for sale. Wax worked by the pound or for a share. Fdn. samples free. Price list ready. **O. H. TOWNSEND,**
6tfdb **Alamo, Kal. Co., Mich.**

Clark's Bee-Keeper's Diary.

A convenient register, with printed headings for sixty colonies, giving a record of swarms, surplus honey, and queens. Price only three cents.

SUPPLIES.

Industrial S. & W. Hives, Carniolan and Italian queens, etc. Price List free. **J. W. CLARK,**
67d **Box 34, Clarksburg, Moniteau Co., Mo.**

C. W. Phelps & Co's Foundation Factory.

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GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A.Whiting

Vol. XIV. **MARCH 15, 1886.** **No. .6**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 5 or more, 75 cts. each. Single Number, 10 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

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SECTIONAL BROOD-CHAMBERS.

Also Some Other Matters Pertaining Thereto.

SOME SUGGESTIONS AND DEDUCTIONS FROM DR. G. L. TINKER.

THE extensive discussions of the past year in the bee-journals on the modes and advantages of reversing brood-combs, as well as the result of trials, has proved that there is no profit in reversing combs singly, because of the labor required, not that there is no advantage to be gained from the practice. Like many other discussions in our journals, truth that we had sought—the germ of wheat sifted from all the chaff—is quite unlike what we had been seeking or had anticipated.

It is no new idea, by any means, that the getting of the brood close up to the sections in working for comb honey is a measure of great value. As the outcome of all the invention and discussion, we have discovered, perhaps, all of the plans by which the brood can be brought near the sections, so that we may now point out the one plan most practicable and valuable. And right here I wish to say that no one man is entitled to all the credit of the discoveries made, because all, or nearly all, bee-keepers have had a part in making them, and have prepared the fraternity for an innovation in our methods that, without this preparation of the apicultural mind, would have been impossible. The credit, I boldly assert, is due rather to the great fraternity of bee-keepers who have not only made discovery possible through their united labors, but now make the introduction of the new appliances and method certain. As one who has done most to favor invention and the evolution of new ideas on this subject, the editor of GLEANINGS should take a just pride in the work accomplished; but as the matter stands, one bee-keeper is as much entitled to the benefits of the work as another; and I trust and believe that all will look upon it in this light, and hesitate not by virtue of a just right to adopt the improved methods as soon as convenience will warrant, and the revolution in the construction of brood-chambers and in our methods of management will demand. But I am strongly convinced that nothing has yet been produced that will enable, to the fullest extent, the practical advantages that are to be derived from our new discoveries. It is my object, however, in writing this article, to throw some light on the subject.

But first, what is the most practical and advantageous method of disposing the brood near the sections at will? Beyond question, it is the proper management of the shallow sectional brood-chamber. Has it any disadvantages? We assert fearlessly that it has not, neither in wintering the laying of the queen, nor in the manipulation of hives or combs.

Until about five years ago, a hive, the brood-chamber of which was in three shallow sections, each $5\frac{1}{4}$ inches deep by 12 x 16 inside, has stood in this town, and contained bees uninterruptedly for 30 years. The colony, in its thin walls of walnut, had resisted the cold and the buffeting of the storms of 30 winters, and it at last succumbed to the depredation of robber-bees which gained entrance through its many rotten corners. It had always done well, was generally on hand with a rousing swarm in season, and, besides, made a liberal amount of surplus each year for its owner. When father Langstroth, a few years since, recommended a thin-walled hive for outdoor wintering I was quickly reminded of the old hive (the panels in the sides of the cases were not over ¼ inch thick). That it had not been manipulated on the modern plan of tiering up the cases and placing the brood next to the supers, was no fault of the hive. The combs were all attached to comb-bars in each case, on the Dzierzon plan.

REVERSING HIVES.

In a shallow sectional brood-chamber we think that there is no advantage whatever to be derived from reversing its sectional parts. The placing of the brood next to the super, and any honey that may be in the upper case below the brood, will accomplish all that can be done. We shall, therefore, have no use for a reversible hive. Again, as we shall not have occasion to handle the frames very much, but instead the sectional cases, it will not be greatly to our advantage to have the frames as readily movable as are the L. frames. On this account a very simple case is all that is necessary to hold the frames—a case without ornamentation, clamps, screws, or any thing of the kind. Neither do we want a complicated bottom-board; but all the parts of a practical hive of this nature should be, *and will be*, made of only a few pieces, and all very plain, and easy of construction.

The frames can be supported in the sectional case on strips of sheet iron cut 5-16 wide, and as long as the case is wide inside, the strips to be inserted in thin saw-cuts made 5-6 of an inch from the inside lower edges of the ends, and to enter the wood only 3-16 of an inch. This construction will give a proper bee-space under the frames, which should extend to the top of the case. The width of the end-pieces of the frames should be 1⅜ in., and the thickness ¼ in., making a closed-end frame to rest on the sheet-iron strips. The width of the top and bottom bars should be the same, and may be ¾ x ¼ inch in thickness.

Here let me call the attention of bee-keepers to the comparative cheapness of these frames, if dovetailed at the corners, to those in common use. They need no nails, and a set of 14 for one hive can be put together in a few minutes; and as they can easily be made very accurately, they will always fit nicely in the cases. The length of the frame might well correspond with the 4¼ x 4¼ sections now so popular. The outside would therefore be 17 inches long, and, if made just 5 inches deep, it will take one-half of a sheet of foundation, cut the regular size for L. frames. The frames can be taken out of the cases very readily, since, being very shallow, the cases can be set on end, and the frames pushed through, one or more at a time. Hence the worthlessness of all clamps to hold the frames in place will be apparent.

Again, if we are to handle hives rather than frames we can see no advantage in having so many frames in each case. I think we shall find seven enough, though many may prefer eight or even nine frames to the case. It will then be very light; but to further lighten it we would make the sides only ⅜ thick, and the ends ⅝, and make the usual hand-holes in the ends, or nail cleats across the ends a little above the middle line to handle them by.

The bottom-board, we would make out of half-inch stuff, with a cleat across each end, of one-inch stuff, the rear piece to be two inches wide and the front five inches. The board is to be cut 1⅛ inches shorter than the hive is long, and the wide cleat nailed across two inches from the end. This would give an entrance across the front of ½ inch. If blocks are nailed on each side, to go under the front corners of the hive, ordinary entrance-blocks can then be used.

Sectional hives, containing only seven or eight frames in each section, will be so light that we shall find it an easy task to carry them back and forth from cellars in wintering, where they can be placed under our full control, and wintered in a scientific manner, which we shall never be able to do in outdoor wintering, where we can not regulate the temperature at will. Only one of the sectional cases, well filled, will be necessary for each colony for the winter.

To operate a sectional hive of shallow frames successfully we shall need a honey-board with strips of perforated zinc set in thin saw-cuts, made in the edges of the slats compassing the board. This construction and use of perforated zinc is my invention, but it is free to all to use. As any kind of a section case or super can be adjusted to this hive, every bee-keeper will be expected to use his favorite.

The capacity of two of the sectional brood-chambers will about equal the eight-frame L. hive, but many would prefer to use three of the parts in building up for the honey-harvest. The frames alone are made to reverse, but we shall need to reverse them but once, and that simply to get the frames filled out with comb plump to the sides all around. Ordinary six-inch boards can be split and dressed to three-eighths for sides of the cases, and we shall have no trouble to get whole boards wide enough for the bottom and covers, and yet there will be ample room for top storing on the hive. For a *very cheap hive* we shall never get a cheaper; and a better hive for *large results* may not be possible.

It will hardly be necessary to add, in conclusion, that this hive is not patented or patentable, except in one or two features, which are my inventions, and are hereby freely given to the public.

Since we received the above, the following, also, came to hand from Dr. Tinker:

I have sent you a brood-chamber by express. It weighs complete, two tiers of frames, only 6½ lbs., and the complete hive will weigh about 15 lbs., and I think it is heavy enough.

As I wrote to you, I shall make a specialty of sections, and do not care so much about hive-making. You can therefore do what you like with it. For myself, I am now more favorably impressed with the hive since making a few of them than before I wrote the article. I further believe that the frames will prove to be more readily movable than I had anticipated. The hive is exactly right width for a section 1⅝ wide, with or without separators, but I shall use upon it a section 1½ inches wide.

The secret of working sections without separators is a *narrow case*. You will now see why I prefer only 7 frames wide in the hive. I believe that these little narrow hives and cases possess more merit than will be readily granted, and that they have a future.

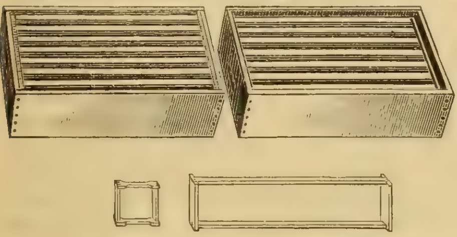
Where the sections are massed together in a narrow case (which is alone practicable without separators) of 4 or 5 sections wide, the side passages have the same advantages, of course, that exist where separators are used.

If, however, we are to *invert* the sections, then a wide frame, constructed exactly like the brood-frames, but a little wider, and to be held in the super in the same manner, seems indispensable. For I believe that, under many circumstances at least, it is impracticable to invert whole cases of sections at a time when any advantage is to be gained from the practice; but if the sections are in wide frames we can usually invert them, one or more at a time, as may be safe to do, the danger being that the combs will lop over sidewise, as they are exceedingly tender before they are capped over. My opinion is, that it will never pay to invert sections. If a case is made to hold wide frames, it will require to be just ½ inch longer than the case described, and the cases to hold the brood-frames, as well as the frames, will require to be ½ inch longer.

G. L. TINKER.

New Philadelphia, O., Feb. 20, 1886.

The shallow brood-chambers sent us by Dr. Tinker are of such extremely nice workmanship, we have taken pains to have cuts of them made. By the way, the doctor's letter is a consideration of the principle suggested by friend Heddon, though he doesn't say so. You will notice he suggests making the hives still narrower than eight frames; in fact, so narrow as to contain only seven.



A HIVE COMPOSED OF NARROW, SHALLOW BROOD-CHAMBERS.

The brood-chambers shown above are 10⅝ inches wide, outside measure. As the boards comprising the sides are ⅜ inch thick, these chambers are 9⅞, inside measure. The frames are about 1⅜ from center to center, therefore seven fill the chamber. The end-pieces are ⅝ inch thick. The frame shown is composed of strips ¼ x ¾. The end-pieces are ¼ x 1⅜. The doctor thinks they do not need nailing. We would nail them both ways with slender nails, securely, in order that they may never pull to pieces, for we may have considerable trouble when the time comes to take these little frames out, if such time ever does come, after they once are nicely filled with combs. In the figure on the left, the frames are shown flush with the top of the hive. The figure on the right shows the same inverted, where the frames are ¼ inch below what is now the top edge of the hive. They are held by a little strip of iron driven into a saw-cut in the usual way. Whether or not these arrangements are ever going to be used in place of movable frames, is the question. I suppose there is no further necessity of debating whether any one has a right to use this arrangement, after reading the letter on page 211. And while we are about it, perhaps it may be as well to say there seems to be no use in *discussing* the matter any further.

REPLY TO G. M. DOOLITTLE.

SEPARATORS, AND WIDE FRAMES TO HOLD SECTIONS.

I HAVE read Mr. Doolittle's quotations on page 171. My correspondence is so great that I must be excused from replying, sentence by sentence. Mr. Doolittle's quotations are all confined to 1881, except the last two, to 1886. He will find just the reasons he asks for, in my writings, between those dates. I have before explained fully how I made my mistake in my first experiments with separators.

Many of Mr. Doolittle's questions are answered in my chapters on hives, and again by him in the fifth paragraph in his article in *A. B. J.* for March 10, 1886. He says in one place I lay the blame to glue; and in another, to two-story wide frames, and wishes to know which is correct. I answer, both; two-story wide frames are glued much worse than those one story deep, especially when tightly pressed with our thumb-screws, as we describe in our book. But for my desire to reverse my sections, I now think I wouldn't use wired frames, whether I used separators or not.

We overcame the propolis question by using shallow wide frames tightly pressed with thumb-screws. I made some mistakes regarding separators in 1881, and the same diligence with which Bro. D. has found them will aid him in finding my admissions and corrections, made long before I wrote the book, "Success in Bee Culture."

Friend Root wrote as though in my book was the *first* place I had spoken in favor of wide frames and separators. Friend Hutchinson corrected him.

Dowagiac, Mich. JAMES HEDDON.

OUR OWN APIARY.

Boiling-Point of 212° Reached with the Solar Wax-Extractor: Experiments with.

WHY THE BEE HATCHES WITH HIS HEAD TOWARD THE CAPPING.

ON page 226 of this present number I am asked whether the bee larva absorbs its food, or whether it receives it by means of a mouth; also why the bee does not starve when it hatches with its head toward the capping; i. e., turned from the base of the cell where the food is supposed to be. In answer to the first question, I will say that a few of the lowest forms of animal life receive their nutriment by absorption, and are generally parasitic. The larva of the bee, though by no means as perfect as the mature bee, yet is possessed of a mouth, rudimentary digestive organs, and a means of respiration. If you take notice you will observe that the young larva will consume a large quantity of food; and were it not for the frequent visitations of the nurse-bees the tiny grub would soon starve. Generally, as we know by sending larvæ by mail, the quantity of bee-jelly will not last the grub much more than 24 hours, if taken from the hive. The larvæ of insects in general are voracious eaters, and the amount of food that they will consume in proportion to their size, as compared with an ox, is enormous. The larva of the bee is no exception to the rule. Indeed, it is quite necessary that the grub should gorge itself during the larval period; for, as we shall presently see, it will need the nutriment derived therefrom for a period of rest.

Now we come to the consideration of the second question; namely, Why does the bee hatch with its head toward the capping, and how does it obtain food, if any, when in the pupa state? From observation and facts which I have been enabled to glean, I am led to believe that the bee, during its pupa state of development, like other insects of its kind, remains in a quiescent condition, during which it takes no food. Indeed, confined within the narrow limits where nature has placed it, without any surplus room in which to reverse its position, how could it turn its head in the direction of the food? We know that the bee hatches with its head toward the capping, and in this position remains upward of 12 to 14 days. During this time we will suppose that the grub as described on page 848, last year, has just relined his cell, covering up all remnants of food, together with all refuse matter, and that his compartment is nice and clean. In the process of development the unsightly grub is distinctly divided into three separate hardened segments at the same time that legs and other organs begin to appear. If in a day or so before the time of hatching we should break open the cell, we should find an ivory-colored bee, and we might or might not detect signs of life; at any rate, we should find it in a state of comparative quiescence. The exterior covering of the bee has become hardened and shell-like, which would make it quite impossible to get any food at the base of the cell, even if there were any there. The bee has his head toward the capping, because, like the chicken in the shell, he is the proper one to decide when he is mature enough to hatch; but were his head toward the base of the cell it would be quite impossible to liberate himself. The caterpillars and silkworms, besides the larvæ of other insects as well, become quiescent when in the pupa state, as we learn from good authority on the subject; and bees would be no exception to the rule. So if we examine all these peculiar phenomena we shall find a cause, and generally analogous instances in other insects.

EXPERIMENTS AGAIN WITH GREEN'S SOLAR WAX-EXTRACTOR, IN WHICH THE BOILING-POINT, 212°, IS REACHED.

March 15.—To-day begin rather warmer than usual, I decided to experiment further with the solar wax-extractor—the outside temperature in the shade being 65°. The extractor was arranged in a suitable position; and, after a lapse of an hour or so, I looked in. The mercury was above 180°; yes, the temperature was actually 213°, or a trifle above the boiling-point. I think we shall have to admit that eggs boiled by the sun's rays is a thing quite probable—indeed possible. If the weather is favorable, and I don't have "bad luck," I will report in regard to sun-boiled eggs versus those boiled by the other method. But, wait one moment; a difficulty confronts us at the outset. The water in the extractor will have to be heated from its surface; whereas, water in a kettle, by the ordinary means, is heated from its base by *convection;* i. e., the atoms are transmitted from one part of the water to another. It is laid down in physics, that water reaches its maximum density at about 39°; when the water is warmed above this point it is expanded, and, in consequence, is lighter. In the wax-extractor, the water will of necessity be heated at its surface by the action of the sun's rays. As this stratum of water is lighter, theory says it will stay on top, and not mingle with the water below and it thus will be heated very slowly. When we go in bathing, after wading out to our necks we often find a cold stratum at our feet, when the water within a foot or two of its surface is warm, having been made so by the action of the sun. This water, as it is less dense, is lighter, and does not sink. In regard to sun-boiled eggs, we will see what practice has to say later.

OUR OWN APIARY.

Our bees are still in splendid condition—only three lost from the whole; but we had reason to suspect these would not winter, one being the Holy-Land colony that I have already referred to, and the other two when put up for winter were queenless. We are thus much better off than we were a year ago at this time, when we had a loss of six instead of two as now. ERNEST R. ROOT,

CIRCULARS RECEIVED.

C. M. Dixon, Parrish, L.I., sends a 4-page list of supplies in general.

C. Weckesser, Marshallville, O., sends a four-page sheet—bees and strawberry plants.

J. P. Moore, Morgan, Ky., sends a 4 page list of bees and queens.

Rev. William Ballantine, Mansfield, Ohio, sends us a 16-page price list of bee-supplies in general.

Simon P. Roddy, Mechanicstown, Md., sends us an advertising sheet of bees and queens, a specialty.

Ernst S. Hildeman, Ashippun, Dodge Co., Wis., sends an advertising sheet of farm produce and bee-supplies.

W. W. Bliss, Duarte Cal., sends a 12-page circular of apiarian supplies; specialty, foundation.

S. Valentine & Son, Hagerstown, Md., send a 20-page price list of bee-supplies.

Frank A. Eaton, Bluffton, Ohio, sends us his advertising card and price list of bees and queens

D. A. Fuller, Cherry Valley, Ill., sends his advertising sheet, hives a specialty.

J. W. K Shaw & Co., Loreauville, La., send their 4-page list; specialty, early Southern queens.

E Kretchmer, Coburg, Iowa, sends a neatly gotten-up price list of 27 pages, hives and Italian bees a specialty.

E. W. Greer, St. Mary's, Mo., sends his advertising card—poultry and hives.

A. J. Norris & Co., Cedar Falls, Iowa, send their 4-page sheet; specialty, Italian and Carniolan queens.

E. M. Yeomans, Andover, Ct., sends a 4-page circular; queens and nuclei a specialty.

Reynolds Bros., Williamsburg, Ind., send a 16-page circular of bee-supplies in general.

R. M. Morrill, Plymouth, Ind., sends an 8-page circular; specialty, small fruits.

Sumner and Prime, Bristol, Vt., send a 16-page price list of bee-supplies.

H. R. Boardman, East Townsend, Ohio, sends an advertising sheet; specialty, choice comb and extracted honey.

Geo. Wheeler, Norwich, New York, sends a 10-page list, hives a specialty.

G. B. Pickering, Fisher's, N. Y., sends a 4-page sheet; specialty, seed potatoes.

Earl Clickinger, Columbus, O., sends an advertising sheet of bee-supplies in general.

A. F. Stauffer, Sterling, Ill., sends an 8 page circular—bee-supplies.

J. W. Clark, Clarksburg, Mo., sends a 15-page circular, 8 pages of which is a diary for the registration of swarms and their increase.

O. H. Townsend, Alamo, Kalamazoo Co., Mich., sends advertising sheets of bees and foundation a specialty.

Bostwick & Ashley, Medina, leave with us their "Egg Bulletin" for 1886; specialty, poultry and eggs.

James W. Tefft, Collamer, N. Y., sends a 4-page circular of the "Queen City" bee-hives as a specialty.

Dr. J. P. H. Brown, of Augusta, Ga., sends us his 15th annual catalogue, of 20 pages; hives a specialty, such as are adapted to the southern climate

J. D. Goodrich, East Hardwick, Vt., sends us a sample of his white-poplar sections, with a two-page circular and samples of comb foundation, very neatly packed inside the section blanks.

Among the circulars and books recently printed at this office we notice the following:

B. J. Miller & Co., Nappanee, Elkhart Co., Ind., a 16-page circular of bee-supplies in general.

G. K. Hubbard, Lagrange, Ind., a very pretty 10-cent bee-book. It has 64 pages in all, the first 30 of which are devoted to a considerable amount of valuable information, condensed in a small space. The remaining pages comprise a description and price list of the Hubbard bee-hive. Mr. Hubbard will furnish the book at the price named above.

A BEE-JOURNAL STARTED IN AUSTRALIA.

VOLUME I., NO. 1, of the *Australian Bee-Keepers' Journal*, is quite a pretty little magazine, published at Melbourne, Australia, at 6 shillings a year, or 6 pence per copy. The *Journal* is well gotten up, the paper is nice, the printing is nice, and the matter is well selected. We wish them Godspeed.

IMPROVEMENT IN BEE-HIVES AND FIXTURES.

NO NEED OF DEMORALIZING CHANGES; SIMPLICITY HIVES EASILY CONVERTED INTO REVERSIBLE ONES.

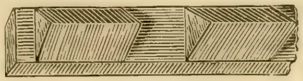
FRIEND ROOT, we gather from what has been written on this subject of improvement in hives, that what is most needed to accomplish the improvement are the following new and desirable features: 1. The easy and quick reversal of the brood-combs when necessary; 2, Permitting the use of a practical honey-board between the brood-frames and the surplus; 3, Whenever thought necessary, allowing the easy and rapid reversal of the surplus honey, either when in frames of comb or in sections above; 4, Allowing the use of separators between the sections when using them in the case system, and on the tiering-up plan.

We know that there have been given, from time to time, a great many methods, and recently an invention, whereby these things may be accomplished; but it seems that they all meet with more or less opposition, on the ground of the demoralizing changes they would of necessity bring about if they were generally adopted. After much careful study and thought upon the subject, it seems to us (and we doubt not our bee-keeping friends will generally agree) that if the addition of the above-mentioned valuable features could only be made to our time-honored movable-frame hives in the personality of the L. and Simplicity, at the same time retaining all of their best features, which have been found to be so valuable, after long years of service and experience, it would be "a consummation devoutly to be wished;" and although at first thought it seems hardly possible, nevertheless we predict that it will not fail of consummation. And now, friend R., with this end in view, if you will kindly allow us space, we will try to make it plain to yourself, as well as our bee-keeping friends, how it is possible to convert a Simplicity hive (those already in use) into a reversible hive, possessing all the desirable features alluded to above, and at the same time doing it without taking it apart and building it over again, and that, too, at so little trouble and expense it could not possibly be considered demoralizing to think of making the change, taking into consideration the many and great advantages to be gained. This is done in the following manner:

Take a Simplicity-hive body, place it upon a circular-saw table, having set the guage at 9½ inches; run it through and cut away the bevel portion at the top, all around; this should leave the top of the hive on a level with the tops of the frames. Next nail on a light frame, or collar, made of strips of wood ½ in. square, size 16×20¼ outside measure, to take the place of the beveled portion removed. This done, you have a Simplicity that will reverse ten hanging frames (or a less number, even with division-boards) without having any alteration to make in them, by simply turning the hive bottom side up, provided the frames are supported from falling out by means of two strips of wood ½ in. thick, ⅞ in. wide, and 15 inches long, laid across them near their ends, and made fast to the offset in the sides of the hive, these being, as we mentioned before, on a line with the tops of frames.

The strips used for this purpose are best made of basswood, and according to the following diagram, only the beveled portion then resting upon the bottom-board, thus furnishing less surface for propolizing. They also would be much better if made of cast metal.

These strips not only hold the frames in their proper places while the hive is being turned over, but, resting upon the bottom-board, by the weight of the hive they press the top-bars firmly against the rabbet, thus preventing the bottoms (which are now the tops) from toppling or leaning together. A Simplicity hive thus treated, makes practically the same hive we are now making and using, the past season's experience with which has given us great satisfaction, an illustration of which can be found on page 771 of GLEANINGS for Nov. 15, 1885, to which please refer, as it will greatly assist us in the further explanation.



STRIPS OF WOOD TO LAY ON THE FRAMES.

Now, with our Simplicity bodies made reversible they will manipulate in all ways the same as the Ideal reversible bee-hive there shown, which is only a modification of the Simplicity, and they will now admit the use of a wood-slat honey-board like the one shown in the cut. This honey-board is reversible, is 15 in. wide and 19 in. long, and has 60 openings like those in a section box, only not so wide, being scant 3-16 in.; and when placed in position on the hive it gives two bee-spaces of ⅜ in., one above and one below. Now, a Hutchinson, or a Heddon honey-board either, could be used, provided it is made wide enough for a ten-frame hive.

Our reversible Simplicity bodies are still interchangeable, and can be tiered one above another, just as they could before; and having a honey-board between, which prevents the upward building of comb from fastening the two sets of frames together, they are much more easily removed when filled. The upper story can also be reversed, the same as the lower, and will reverse metal-cornered Simplicity frames as well as all-wood top-bars, or both kinds together. Half-stories, if they are made alike at top and bottom, to hold the sections and separators in single-tier wide frames, can also be reversed over the brood-chamber, provided the tops of wide frames are made the same width as their bottoms; however, we do not recommend the use of wide frames to hold the sections, either in single or double tier, in order to be able to use separators, for we have a much better way of doing it.

This brings us to consider our reversible cases, to be used over our newly made reversible Simplicity body, to hold the sections and separators (see illustration above referred to); and from practical test we can safely recommend it as being by far the easiest, simplest, and best method, thus retaining all the valuable features of the case system, as taught by friends Heddon and Hutchinson, besides adding to it the use of separators, and permitting the reversal of all the sections at one operation.

The case holds 33 1¾-inch sections, without any separators, or 30 1⅞-inch sections with separators between them—not short ones either, but long enough to reach across three section boxes; nor do they have to be nailed to any thing as separators are when used in wide frames—a very big advantage, as any one trying it will discover. The cases are not thin-walled, as the Heddon case, nor do they need the outer covering, as does the Moore case. They are 16×20¼ inches, outside measure, and fit over a Simplicity hive exactly. The ends are of ½-inch lumber, and the sides of ⅞-inch. When they are placed on the hive, a honey-board goes between, and they can be tiered up, one above another, the same as the bodies. We believe we have written to you how this plan of reversing frames and sections can be utilized in a chaff hive.

And now, having made it plain (as we think) how all these new and valuable features may be added to the hives we already have in use, with but little trouble and expense, by only slightly repairing them, we will mention only one of the many advantages this plan presents above any other method yet offered. This, of course, we consider the most important of all. It is the retention of our good father Langstroth's movable hanging-comb frame, that we all love to manipulate so well. If, however, we have not made it sufficiently plain, we shall be pleased to try again. **HEMPHILL & GOODMAN.**

Elsberry, Mo., Feb. 12, 1885.

Thank you, friends, for the caution about being in haste to drop our old hives and take up new ones. I have already reversed Simplicity hives on a plan similar to the one you advise. Instead of sawing off any thing from the top edge of the Simplicity hive, however, I would make a frame such as would be obtained by taking a common Simplicity cover, and sawing half an inch from the lower edge, clear around. This will go right on the hive, and may be bradded fast. The strips to hold the frames in place I would make of tin, folded much like an ordinary tin rabbet, only being half an inch on each edge. Push these down on top of the frames, leaving the sharp edges of the tin sticking up. A nail driven into the side of the hive, so its head lies snug down into its channel, with folded tin, will hold it in place so the hive may be inverted. We found, however, that a whole Simplicity hive was pretty heavy; and half-depth frames would doubtless be more easily handled, and would work nicer. See the article from Dr. Tinker, on page 203.

THE STINGLESS BEES OF MEXICO.

MORE ABOUT THEM.

THE statement of John L. Gregg, about the small bees of Mexico, is by no means a new thing. These bees are well known to entomologists as the honey-bees of the tropics, which are very small, have no stings, and live in very large colonies. They are known as *Meliponæ*. The wings are shorter than the abdomen, and the mandibles are not toothed. They are found only in South and North America, and not in the other continents. There are several species of them. Some build their combs in hollow trees, some in banks, and others suspend their nests from branches of trees. One variety builds clay hives, and its honey is said to be excellent. It is not probable that these bees would thrive in our cool climate.

MICA FOR BEE-VEILS, ETC.

I send you a sample of our mica, which, as you will find, can be split with a knife into very thin sheets, which I think would make excellent eye-pieces for bee-veils, also for observation-holes for hives. This is only a small size. It can be cut with scissors with ease, and pierced with a needle so it can be sewn. Plates 6 or 8 inches square can be procured; but this size is dear, on account of the demand for it for stoves. The small sizes, like the sample, can be procured quite cheaply, for $2.00 a pound, about; and a pound would make a large number of sheets. This mica is very abundant here. It was mined by the aborigines who built the great mounds in Ohio and other parts of the West, in which plates and sheets and ornaments of it are found; but as a large quantity of rock has to be moved to get to the mica, it has a market value of from $4.00 to $10.00 per pound, for merchantable sizes. **HENRY STEWART.**

Highlands, N. C., Feb., 1886.

Friend S., we are much obliged for the additional facts you give in regard to these bees; and although it may be true that they will not live here in the North, what is to hinder sending our boys and girls down to Mexico to look after them? Who will volunteer to see whether it be not possible to produce honey that can be profitably shipped north, from these new bees?—In regard to the mica, it has been several times before our people, and bee-veils have been advertised with mica fronts. Many thanks for your beautiful specimens.

BEE-TALKS.

NO. 2.

MAN is a mimic, it is said; and this is true to a large extent. We do as we have learned from others. But I find that we all have some ways of our own. No matter how well we may have learned our trade or profession, we will do some things differently from others, or the way we were taught to do. It is all right that we should do so. It is the only way we, as a whole, make any improvements. It is those departures from the old ruts that result in our valuable inventions in every thing. Our most successful bee-keepers differ very much in their manner of management of their bees. Almost every one has a way of his own, and I have sometimes thought I was an odd one, as I have so many of my own notions. Still, I have learned and practice a great deal that I have learned from others. I take the *A. B. J.* and GLEANINGS, two very valuable papers, and I would not do without either for three times their cost. But the best book that I have is my bees. They are a great study, and I am all the time learning something new about them.

I have been the owner of more or less bees for over forty years (I am now 62), and what I say or do must be done soon; and if I write any thing that would be misleading to beginners, I ask the old heads in the bee-keeping fraternity to correct me. But we must bear in mind that location has a great deal to do with results; and the more bees one has, the more he has to change his manner of operations. Plans that would do for ten or twenty colonies won't do for one hundred or more.

Beginners in the bee-business should do one of two things—either start with a few bees, or work two or three seasons with a good practical bee-keeper, one who has made bee-keeping a success, and has handled a large number of colonies; and then, in connection with the work, read all the standard works on bees, including the bee-papers. I think the last plan the better of the two.

I believe that bee-keeping can be made a success if the party engaged in it has a liking for the business, and starts in a good location. But the bee-business is not all honey. I have found, in my experience, a great many pull-backs and losses, and many things that did not come up to my expectations but I have blundered along until I have learned something about the bees and about my locality, etc. In my remarks I wish to speak of my management, and my mistakes.

Bee-keepers as a rule, don't like to tell their blunders. They "blow" about their great success, big crops of honey, and figure up every thing at the highest price, and make a big show in figures. Perhaps the next year their success is in the little end of the horn—had bad luck; bees winter-killed, spring-dwindled, poor honey season, etc. Not a word said now. So the A B C class get only the bright side, and are led to think that bee-keeping is a big thing, and they go in heavily, only to end in failure and disappointment.

HOW DID I EVER COME TO BE A BEE-KEEPER?

Why, I just blundered into the business. I always had a liking for bees and honey. I tried hard to be a farmer. I went to Iowa 30 years ago, bought 200 acres of land on the prairie; stayed six years; then the war broke out, and at first there was no price for any thing I could raise on the farm. We had some relatives here in Platteville, so we left the farm and came here to visit; stayed a year, and then went back to the farm again.

When we got here I had to do something for a living, as my labor was about all we had to depend on to support myself, wife, and one little boy, then five years old. About that time I saw an advertisement, "Agents wanted, to sell Metcalf's Bee-hives." I took the agency, got a sample hive, and made the hives myself. At that time almost every farmer kept a few swarms of bees. The hives sold for $2.50 each; the patent to use them, $5.00 for a farm-right. I had all I got for hives, and half for the patent. I soon made enough to buy the county-right, and then I bought two more counties. I took some bees in trade, and that is the way I got started.

The hive was a frame hive, 12 x 12 inches, and 17 inches high; used 8 frames standing on the bottom, It had a movable front. I made them single for one colony; double for two, and quadruple for four colonies, all single-walled hives, no chaff hives then, nor extractors. I worked my bees for comb honey in large boxes, 30 lbs. or more. I soon divided my boxes down to 3 lbs. Honey sold then from 25 to 30 cts. at home. I kept increasing slowly until the fall of 1871, when I had 123 colonies of bees. I already had them in three apiaries. All old veterans will remember that winter of 1871 and '72. In the spring I had 20 colonies left alive.

The next fall I started in the winter with 50, and that winter was a hard one. The spring of 1873 I had 14 colonies alive. Then I made up my mind that my hive was too small, so I commenced to make larger hives. I made them 13½ x 13½, and 22 inches high, inside measure. I used 9 frames, and made them quadruple, or, as they are called nowadays, tenement hives, holding four colonies, but at that time I made them single-walled. I changed my 14 colonies all into the large hives. My stock of old hives was used up for kindling-wood. There was no sale for hives, as all the bees in the country about here were dead.

Now right here let me mention one of my blunders. I got me an account-book, and kept a record of just what was done with every individual colony, but I failed to give my number of colonies in the spring and fall, and amount of honey taken each year—in fact, no general management, which would have been of more value for reference. But I make out this much: That in the fall of 1880 we had 220 colonies; in the spring of 1881, we had lost all but 72. We had one yard of over 60 colonies, that went down to 3; cause of the loss, too windy a location, very hard winter, and we extracted too close late in the season.

The year of 1881 was a poor season for honey, but we increased our 75 colonies to 157 in the fall, and took 2000 lbs. of honey, all extracted, and had our bees fixed up in splendid order for winter.

The winter of 1881 and '82 proved to be an open, warm winter. Of the 157 in the fall, we had 155 colonies in the spring, which we increased to 295 in the fall, and took 13,000 lbs. of honey.

The spring of 1883 we had 211 colonies in five yards. The loss was almost all from desertion in the spring. From the 211 colonies in the spring of 1883 we extracted 22,037 lbs. of honey—an average of 104½ lbs. per colony, spring count. I failed to record the number of colonies in the fall of 1883.

The spring of 1884 we had 291 colonies. From 287 colonies we extracted 31,283 lbs. of honey; comb honey, 206 lbs. from 4 colonies—an average of 109 lbs. for the 287 extracted, and 51½ lbs. average of comb honey from the four ran for comb honey. We went into winter quarters with 455 colonies.

Last winter was a hard one, and the spring of 1885 found us with 321 colonies—a loss of 134. From these 321 we extracted 33,086 lbs. of honey, and increased the bees to 510 colonies. Our average per colony this year was 103 lbs.; but owing to so much wet weather at the close of the basswood season, and no fall honey, we had to feed back to the bees 6114 lbs. of honey, to give them enough to winter on. That left us 26,972 lbs. after feeding back. Our average would be 84 lbs. per colony, spring count.

I find it hard to tell just when to quit taking honey, and get all the honey we can, and leave them enough for their winter stores. In this locality the basswood is the last thing that gives us any surplus. We try to time it so that the bees will have a good supply for winter out of the basswood. This year, when the basswood was half through, we commenced as usual to leave in full combs of honey in the back-side of the hives, leaving in more and more every day. The last day we extracted we left in one-half of the honey. The next day was a rainy day, and the next five days were wet, drizzly weather, and the basswood season was over. The bees were short of honey for winter. We waited three weeks and then went to feeding. We fed one yard at a time until all were fed. We fed the last honey we extracted, and fed all but one yard; that one had enough, and it was the next yard in rotation to extract, but we did not get to it, on account of the rain.

We use the pepper-box feeder, quart size. It holds three lbs. We put two on a hive at a time, and fill them up again in two days. We fed one yard of 100 colonies six feedersful each—18 lbs. each, or 1800 lbs. for the 100 colonies. The other yards were fed, some 18 lbs., some 12 lbs., and some 6 lbs., according to their wants. We did not go to the trouble to examine all the hives in a yard. We would open about 10 or 12, take a look at them, and make up our mind how much they wanted, and then feed all the colonies in the yard alike. Be sure to give them enough. It is much better to feed in the fall than in the spring.

Now just a word about hives. I very much prefer aq uadruple hive, four colonies; then have it doubled-walled, and fill in between the walls with chaff. We are making and using my improved Metcalf hive and some Langstroth hives; but for our own use we put the L. hive in a quadruple form, two or more stories high, lined all around the out side with a chaff cushion. The cushions are put inside of the hive. We winter all our bees outdoors, and we have to give them all the protection we can.

Platteville, Wis. E. FRANCE.

Thanks, friend F., for the valuable facts you give us. The matter you mention in regard to extracting just enough and no more is indeed a fine point. We once had a similar experience. During the last of my extracting, the robbers got so bad we stopped, and the last half of our apiary was not finished at all. They wintered nicely, while the half that had been extracted, a good many of them starved, and others had to be tinkered with. Now, let me suggest that taking out heavy combs and setting them away will fix this nicely. I know it is some trouble, but I think it is more trouble to throw honey out of combs, and then feed it back again. From the experiments recently given in feeding back extracted honey to get sections finished, it looks as if from one-fourth to one-half of your honey is lost where you throw it out and then feed it back, compared with the plan of just lifting full capped combs from the hives and setting them back when needed. I may suggest to our readers, that friend France is the one who gave us the idea of the pepper-box feeder, shown in our price list, page 13. I am glad to hear that somebody is using tenement hives, and likes them.

NOTES FROM THE BANNER APIARY.

NO. 75.

MR. HEDDON'S NEW HIVE AND SYSTEM.

WHEN Mr. Heddon explained to me, a year ago, the beauty and originality of his new hive and system, I was fairly captivated. I then felt, and *still* feel, that his invention is second only to father Langstroth's. I firmly believe, in fact I *know*, from actual experience with the hive, that Mr. Heddon has given us a movable *hive*, in the sense that we before had a movable *frame*. I *know* that almost every manipulation in an apiary run for honey can be performed without removing a single frame. It is a grand step. Although well satisfied of what could be done with his hive, Mr. Heddon did not patent it until he had proved, by *two years'* actual work with it, that it was worthy of a patent. Naturally, Mr. Heddon expected, when he made public his invention, that there would be some "pooh-poohing" done; and then, when its value was finally recognized, he expected to hear the assertion that it was not *new*. He was mistaken in only one particular, and that is in the amount of "pooh-poohing" that would be done. The cry of "worthless" was scarcely breathed ere it died upon the lips that uttered it, and was dropped for the one of "Oh! it's old, it's old, it's *old*"—the very same cry with which father Langstroth was "dogged." Now, all bee-keepers rise up and call him blessed. Let us not repeat the mistake of our fathers.

Let us not first *assume* that Mr. Heddon's hive is "old," and *then* ransack the Old World as well as the New for proofs of our assumptions; let us not *desire* to arrive at a certain conclusion, but rather to learn the *truth*.

Mr. Heddon does not claim to be the inventor of shallow frames, of reversible frames, of reversible hives, nor of "thumb-screws;" but he was the first to invent and make public the construction of a *brood-chamber*, not "*hive*" (here is where those who cry "old," "old," make their mistake) in two horizontal, separable sections. While he *claims* them only when invertible, he has a *moral* right to them in any shape; and let any supply-dealer now advertise Langstroth brood chambers in two horizontal, separable, interchangeable sections, and the moral sense of the community will at once recognize the theft. That Mr. Heddon had in mind the fact that many advantages would accrue from using shallow Langstroth frames, and interchanging them, is shown by the third paragraph on qage 96 of "Success in Bee Culture." It reads as follows: "Having the brood-chamber in two horizontal sections, or parts, admitting of interchanging the upper with the lower portion at will, for the purposes specified, placing the part below containing the most honey, putting both in a new position, produces many of the same results and advantages given us by inverting. . ."

Those who are thinking of *evading* Mr. Heddon's patent by using half-depth Langstroth frames should know that they are losing many advantages by so doing. A single section can not be inverted, which is an advantage when only one case is used, as in contracting the brood-nest. The frames will never be solid full of comb. Queen-cells can not be so easily clipped without removing frames, and the bees can not be shaken from the case, as the frames are loose.

I am well aware that many of our inventions are the result of many minds. It is seldom that one inventor makes such a jump as did father Langstroth; but each space covered by a "little jump" belongs to the man who cleared it, and is patentable. Perhaps many of the readers of GLEANINGS do not know exactly what Mr. Heddon has invented. For their benefit I will give some of his most prominent claims.

1. Arranging comb-frames within a case which is a bee-space deeper than the frames, in such a manner as to hold them securely at will in a central position, leaving half a bee-space on each side, or readily shifting the whole bee-space to either side.

2. He was long since the inventor of a honey-board containing one or more bee-spaces, or parts thereof, on one or both sides, and he *now* claims such a board when used in *combination* with a hive whose *brood-chamber* is constructed in two or more horizontal, separable, and interchangeable sections.

3. The use of a set-screw, when *combined* with closed-end frames, in a case, *substantially as he uses it*.

4. The projecting tin rests, when used in *combi-*

nation with the set-screws, frame, and case (any claim holds its equivalent), and these tin rests are a grand thing in *combinaton* with the screws, wedges, or levers, or anything of the kind.

5. The *combination*, with said comb-frame cases, of a cover containing a bee-space, or partial bee-space in one or both of its surfaces.

6. The *combination*, with one or more invertible-hive sections, of the bottom-board, arranged as described and illustrated.

And now comes a broad original claim.

7. In a bee-hive, a *brood chamber*, composed of two or more horizontal, separable, interchangeable, and invertible sections, each section containing within itself a set of brood-comb frames whose depth is one bee space less than the depth of the case.

There is one or two more less important claims; but the above are enough to show our intelligent public that no one can make a hive half as good as Mr. Heddon's without infringing.

I should like to have it explained how it can be that things *dead* can be "just like" valuable living things, just born, that everybody now wants. Why did they die? There *must* have been a difference. There *is* a difference, and it is this: Before modern beeculture divided hives into two radically different apartments (brood and surplus), tiering sections were suggested; but all these ideas perished, and have no more to do with invalidating Mr. Heddon's patent than has one of the lost arts. In other words, making *hives* in horizontal sections is *not* new; but the making of a *brood-chamber* of "two or more horizontal, separable, interchangeable, and invertable sections," *is new.*

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

Friend H., it may be I have not gone deep enough into the matter; but to my comprehension it seems to me that the following answers completely your last paragraph and pretty much all of the above article.

KRETCHMER'S ALTERNATING HIVE.

THE PRINCIPLE NOT NEW; IN USE AS EARLY AS 1865.

IT seems to me that James Heddon's claim on his new hives is rather sweeping at this late day. His hive is in substance the same as my "Alternating hive," made by me in 1865; patented July 23, 1867, No. 67,123, and given for free use to the public about ten years ago.

It consisted of three equal tiers, each tier about 7 inches deep, and containing each 10 frames. The upper tier was used for surplus honey, and the two lower tiers for brood; after the two lower tiers were filled, and the surplus-honey tier added, the two brood-tiers were "alternated;" that is, the middle tier was placed at the bottom, and the bottom one placed in the middle, so that by this arrangement the center of the brood-nest was brought close to the surplus-honey chamber, into which the bees did very readily enter. Combs had frequently been started by having this surplus tier at the bottom for a short time; the top of the original brood-nest was by this alternating process brought in the center, and most of the honey removed to the surplus-chamber; and for swarming artificially, either half could be taken for a new swarm, on the plan of the old section straw hive, once so much in use in Germany.

In proof of the assertion, I refer to the patent above named, and from which I copy a few lines to show more fully that some of friend Heddon's devices are quite old.

"The vertical pieces, M M, are made wide enough to have the edges of the several frames touch each other;" and, "Between the sides of the case and the movable frames I insert a wedge-shaped piece of lath for the purpose of closing the crevices between the several frames;" and, "The hive consists of three or more equal sections, of which two form the brood-chamber, for the purpose above named."

Now here, friend Root, we have the several tiers, the closed-end brood-frame, held together by a wedge (equivalent to a screw), all in shape to alternate, reverse, or invert at pleasure, and all of which belongs to the public. E. KRETCHMER.

Coburg, Iowa, Feb. 13, 1886.

IMPORTED ITALIAN QUEENS AND THEIR PROGENY.

ALSO SOMETHING ABOUT FRIEND BENTON'S SUCCESS IN SHIPPING BY MAIL.

IN reading friend Doolittle's article on imported queens, or their daughters, in GLEANINGS for Feb. 15, I am aroused to speak just a word in their favor. My experience in bee-keeping is very small, and much less with imported stock; however, I like to speak once in a while, whether my few words are of any importance or not. In the fall of 1884 I wrote to Mr. Benton (at Munich, Germany) for sample workers of his Italian and Cyprian bees, and inclosed 10 cts. to pay postage on them. About a month later I received the bees in good shape; and on opening the cage I found a medium-sized Italian queen, rather dark in color, though bright and lively, after her 14-day journey. They were accompanied by a letter, stating that he feared the bees would worry themselves to death if shipped alone, so he picked the poorest-looking queen he had, and sent her with them. He said her progeny had not hatched, so he could not tell what her bees would be; but he said, if I thought her worth $1.00 to me I might send him the additional 90 cts., which I did at once. He said her mother was imported from Bologna, Italy.

I introduced her at once, and in less than twelve hours she was depositing eggs. This was about the 20th of September, so her bees did not have a chance to fly much. They were like her, rather dark, though all three-banded. I put them in the cellar the 18th of November, and took them out the 25th April. She was bright as a dollar. The bees were mostly old when put in, in consequence of which they were reduced to two frames of bees, both of which were partly filled with brood. I fed them nothing, nor gave them any additional brood, and from that time till the latter part of June I took from her 11 frames of brood, with all adhering bees, to help build up others that were just as strong when set out. They were strong enough by this time, so I divided them and made two good colonies in 10-frame hives.

The latter part of July I extracted from the artificial colony (after raising their own queen), 50 lbs. of fine honey. I weighed the hive early the next morning, and again the following morning, and found a gain of 11 lbs., and a one-story hive at that, This is my only experience with imported stock; but I think it speaks well for friend Benton's *cull*.

ELIAS FOX.

Hillsborough, Wis., Feb. 22, 1886.

CELLAR WINTERING OF BEES.

A DIALOGUE.

"GOOD morning, neighbor D. I called to see how the bees were wintering. I am losing some of mine."

"Am sorry you are losing bees, friend H. Mine seem to be wintering well, especially those in the bee-cellar. In fact, I never had bees appear so nice and quiet as they do this winter in the cellar."

"Should like to see them; but from what I read, written by some of the 'big lights,' I suppose you never go into your bee-cellar after the bees are put in until you do so to take them out in the spring."

"Oh! yes, I do. I go into it regularly once every two weeks, and oftener, if I think any thing needs doing in there. I suppose I am considered a heretic on this question; but be that as it may, I have every reason to believe that no scientific wintering of bees can be accomplished when no observations are taken, except when the bees are put in and taken out of the cellar. Bro. Ira Barber gives the temperature of his cellar as ranging from 60 to 90°, while by private letter he says he does not take a register of the temperature except when he puts them in and takes them out. These figures, therefore, are of necessity misleading; for all know that the commotion caused in moving bees would raise the temperature of the cellar much above the normal heat. I venture the assertion, that if Mr. Barber will take a daily register of the temperature of his cellar, as does Bro. L. C. Root, by letting a thermometer down through a hole in the floor, he will find that the temperature of his cellar is not much above that reported by other bee-men. But, come; if you wish to go into the cellar we will go."

"What! got three doors to go through to get in?"

"Yes; these three doors inclose two dead-air spaces, and it is a rare thing when any frost gets in this second space, where we will stand while I close the two outer doors and light a lamp. Now, before we open the other door I wish to say to you that you will be careful not to hit any of the hives, nor breathe in any way except through the nostrils; for the breath by way of the mouth in the cellar arouses the bees more than hitting the hives, both of which I desire to avoid."

"What is that low murmuring noise I hear?"

"That is the contented hum of the bees in their winter repose, and you can always know that bees are wintering well when 50 colonies make no louder noise than you now hear."

"But according to Clarke, of Canada, I thought that bees, when wintering well, were 'hibernating,' and gave no signs of life."

"Bees never hibernate as do ants, wasps, flies, etc.; and I can not indorse friend Clarke's word as applicable to bees. Quiescence would be much more appropriate, in my opinion, than hibernation."

"Hark! there is a bee flying. Do they fly out here in the dark?"

"Yes, that is only a bee ready to die with old age; and as instinct prompts the old bees to leave the hive when the temperature will permit, it is only obeying nature's law in flying out. See, here are quite a few bees on the floor, but not nearly as many as is the average of most winters. I often come in here in the dark, and listen for these old bees; and many times before this winter, from two to five would fly out while I was counting 100 slowly; but this winter scarcely more than one comes out while I count 200."

"What have you on the floor here? Sawdust?"

"Yes, every month I bring in about a bushel and a half of fine dry basswood sawdust, such as I make while sawing sections, and scatter it on the floor. This sawdust will absorb almost its bulk of moisture, so I keep it in here to keep all dry, sweet, and nice. Before I used this, the dead bees on the floor would mold and smell bad, and the combs near the bottom of the hive would also mold; but now all smells sweet and nice, and no mold appears."

"Here is your thermometer. I see it marks 44°. What is the extreme of temperature in here?"

"From 43 to 45° above zero. After the first few days when the bees are set in, then it is as high as 55 to 60°, but lowers to where you see it."

"What, doesn't a warm spell in winter, or a long cold spell, have any effect upon the temperature in here?"

"No: and a cellar that allowed of the outside temperature affecting to any extent that inside, I should consider faulty. There are two roofs and three feet of dry earth over this, which, with the three doors, keeps an even temperature. Now step up and look at these yellow fellows when I take off this sawdust cushion and roll back the quilt."

"Why, Doolittle, they are dead."

"No, I guess not."

"But they don't stir."

"I will breathe upon them."

"They are alive! that is a fact. Do they keep always thus quiet?"

"I have never seen them more uneasy this winter; but the year I used artificial heat, and lost so heavily, I could not lift a quilt like that without their boiling all over the tops of the frames."

"Where are your ventilators?"

"Here is the sub-earth ventilator, but it is shut off at the outer end and has been for the past three months, while the other ventilator is in the opposite end, and at the top. This also is shut down to a hole less than two inches in diameter, as I find that all the air the bees need to keep them in the best condition comes through the masonwork, doors, and earth covering. This is what some call no ventilation whatever; but you see the air is pure and good in here. Well, we will go now; but first notice that the bees are nearly if not quite as quiet now as they were when we entered a quarter of an hour ago. If our entering does not disturb them any, why should I not have the privilege of coming in here as often as I please? Good-morning. Come again when you wish to learn more of the bees."

G. M. DOOLITTLE.

Borodino, N. Y., March 1, 1886.

There, friend D., you have got your bee-cellar so you keep it just about the temperature of that deep cold well you told us about, and that is pretty near the temperature of old Mother Earth in your locality. I am somewhat surprised, however, that you are able to keep it so low with the ventilators shut off as you have them. It seems to me your bees are quite accommodating this winter. Ernest wishes me to say that the above is just to his notion, because it is so very plain and clear that even the juveniles will understand every word of it.

WORKING WITHOUT SEPARATORS, ETC.

ALSO A SUGGESTION IN REGARD TO GETTING LARGE YIELDS OF COMB HONEY, EVEN IF YOUR BEES DO SWARM.

THE following article was so lengthy as it came to us, that Ernest clipped off the last end of it, and it appeared on page 186 of last issue. As friend King did not feel satisfied with our mutilation of his production, the matter was referred to myself. After a careful examination, I decided there was so much value in the article, even though it were long, we give it here, and thus we have the first part last.

I do not use separators. With me they are an unnecessary trouble and expense. Last season I visited a neighbor's apiary,—found about a million little wooden separators with his surplus arrangements. He had some nice straight sections; so had I *without* separators. I think I can get more marketable honey without them. If I have an occasional thick or bulged one, I keep it to sell to my neighbors. I find but a few, however, and am often obliged to take from my nice smooth ones to supply the neighborhood demand. I *have* used separators, also wide frames with separators, but I do not care to change from my present system, which I have used long enough to know how it goes.

I use a Heddon case with a false section, or block, ¾ in. thick at one side. When filled and *glued*, I can easily remove this block, when the sections can be readily taken out.

My principal business is working for comb honey; and what I want is the best possible result and, to obtain this with as little work per colony as possible, consistent with good management. I am willing to *work*, and always find plenty to do; but I always aim to avoid any unnecessary manipulation. If it is desired to force all the honey from the brood-chamber at the commencement of the honey season, and fill the hive below with brood, I can usually accomplish this, practically, at one operation, which every bee-keeper must do at least once at swarming season; and if no swarm occurs, *this* is not necessary; for what good strong colony is there but will store an abundance of comb honey if no swarm be cast under ordinary circumstances?

But we were speaking of the probability of one swarm being cast per colony. One writer mentions that if the combs be reversed at the proper time, swarming will be allayed. What an idea of benefit is this! Who can tell, without almost daily examination, when this "proper time" is? Probably about once in fifty times, one would guess right, and nothing will so likely increase the desire to swarm, as reversing combs and increasing the amount of brood and bees. I believe in strong colonies and lots of bees, but I don't think it necessary to carry it to an excess; and it is a question with many prominent bee-keepers, if not more comb honey can be obtained from a given number of colonies, if they were not allowed to increase the capacity for brood-raising to more than half the capacity that would be reached by reversing frames, thus preventing swarming in nearly all cases, enough brood being hatched to keep the colony strong and in good working force. The surplus honey needed for brood-rearing, would thus be stored in the sections. It seems to me that some who have been advocating little manipulation of combs, have now taken a widely different stand, and are inventing plans which end in the excessive manipulation of combs, hives, etc., without any decided advantage. If a moderately shallow hive be used, there need be no difficulty at just the time required to practically fill all the frames with brood if desired, by the plan I use for the prevention of after-swarms, and to keep my working colonies in prime condition for storing comb honey every day of the season.

I have had many colonies in my yard this last season, which, during the height of the white-clover season, were literally filled below (10 frames) with brood, while they were carrying along nicely a couple of cases of sections; and I believe if I should wish, I could, in nineteen cases out of twenty, produce the same results, and, too, without the use of reversible frames. How many bee-keepers there are who are often heard to remark, "If I could only keep my bees from swarming," believing as they do, that any colony in good condition in the spring would store a satisfactory amount of honey during the early honey season if no swarm were to issue. A few bee-keepers claim that they can obtain as much comb honey from a new swarm hived on fdn., as they would from the old colony if no swarm had issued. I believe this to be far from customary, even with those who have advanced such statements, and that all such occurrences are but rare exceptions to the general rule. As it is natural for bees to commence swarming at the beginning of the honey season, such swarming may be expected, if not depended upon. In nearly all cases, colonies that send out first swarms about the commencement of the early honey season, have made more or less advancement on their sections, which must be suspended, unless the swarm (the new colony) will continue the work.

Now, what shall be done to keep up the work in the sections? A great many would return the swarm. I have done so, but I don't any more in the early part of the season. Every one knows how "strong," as we say, a new swarm will work. My plan is this: If a swarm issue, hive it on a *new* stand. At the time, or soon after, give them about ⅔ of the brood they have just left; fill up the body of the hive with frames of fdn., place the sections they have left, upon them, and you have them at work on the sections with even more zeal than they had before, and without any delay, and upon the old stand you have a nucleus "as is a nucleus," into which, after the first night, slip a virgin queen if possible, and it will be a strong colony amazingly quick, and ready for winter in good shape, and fall-honey surplus, too, if there be any. In this way all after-swarming is prevented, the number of colonies is doubled, or nearly so, and the original number of working colonies is kept strong, and hard at work, too, on the sections, every day, through the honey season.

In introducing queens, either laying or virgin, I do not consider it necessary or wise to leave the colony undisturbed more than a few hours after releasing the queen. If they are all right next day, I consider that enough; if they are rejected, they will be missing, and it is time we should know it. I have never lost one from opening the hive the next day, or soon after, and I have introduced hundreds of them. C. W. KING.

Kibbies, Mich., Feb. 10, 1886.

After reading the above, please turn to page 186 of last number for the rest of the article. —The plan of saving bulged combs for the home retail trade is an excellent idea; and for economy in packing away neatly, we can set them in the regular retail cases by putting empty sections between sections where the honey is bulged out very badly.—The plan of giving the brood-combs from the parent stock to a new swarm has been a good deal practiced; but friend Doolittle and others object, as it often causes continued swarming. When your bees get a swarming mania, very likely this may be a trouble. If they have not a queen to swarm out with, they will often swarm as soon as they can get one hatched.

MRS. HARRISON TELLS US HOW THEY WINTER THEIR BEES.

CELLAR WINTERING COMPARED WITH CHAFF PACKING.

MR. EDITOR.—Your chaff hives may be the very best for wintering bees, and far ahead of cellar wintering; but, what are we to do who have not got them and are not able to procure them? We are wintering forty colonies in the cellar, and, as far as I can judge, they are as bright and as healthy as in June. The cellar is paved with brick, and I occasionally sweep up the few dead bees, and the air is sweet and pure. Once, during a very cold spell, the thermometer went down to 38°; but most of the time it kept at the neighborhood of 45°. The bees were put in the 23d of December, after enjoying a fly for several days.

The bee-cellar is partitioned off from the main one, and has a sub-earth ventilator. As far as I am able to judge, the ventilator does not lower the temperature, if kept open during severe weather, and there appear to be counter-currents through it. There is a window, hung on hinges, but there has been no occasion to open it as yet. Since the introduction of the sub-earth ventilator, the air in the main cellar is much purer than formerly, and no mold accumulates.

As to "lugging hives in and out," there are plenty of men on the street-corners glad to do it for a consideration, and two men could carry in one hundred in half a day. Longfellow says something like this: "Take whatever lieth near thee, and work from it thy work of art." I could not command chaff hives, but I had the cellar, and a few dollars fixed it up for bees; and some men, glad to earn a few pounds of honey, carried the bees in.

About as many colonies are wintering on their summer stands, protected in four different ways. I had some barrels not in use; some were oil-barrels, others apple and pork barrels. The bees had on Hill devices, covered with new muslin, which was fastened down to the top of the hive by running a hot smoothing-iron around to melt the propolis, so no bees could come up; then two thicknesses of woolen cloth and wire netting over this, which was kept firmly in place by nailing on little cleats of wood. When thus prepared, and the bees fastened in in front, they were ready to barrel. Into the bottom of this was poured a quantity of chaff, and the hive (an eight-frame Langstroth) dropped in. All around the hive, chaff was packed very closely —bottom, top, and sides, and then turned down upon its former stand. Colonies in the barrels appear to carry out fewer bees than the others, and during warm days they play as in summer.

I have one hive called Cyula Linswik, as it is fixed as nearly as possible as Mr. Hutchinson described her manner of wintering. A number of hives are placed against the east side of our house, and packed between and around them with leaves, chaff cushions on top, and the whole covered with boards to keep off wet. A few hives are standing singly, with four thicknesses of newspapers above the muslin, and the cap shut down over paper, and chaff cushions above—one without paper. I expect the barrel hives to come out ahead; if so, it will prove the value of chaff hives. As the bees upon their summer stands have access to water frequently, I shall put wet cotton rags in the porticos of those in the cellar, so that they can help themselves if they wish to. Bees are now upon the wing. MRS. L. HARRISON.

Peoria, Ill., Feb. 23, 1886.

By all means, winter the bees in the cellar when you are situated so it will be the handiest and cheapest, Mrs. H.—In regard to cheap help, there are men standing around here in Medina as well as in Peoria; but my experience is, that it would be about as much trouble to teach them to carry the hives into the cellar, and set them down properly, as to employ expensive help for the purpose; and sooner or later these same men who have not any thing to do, usually want about as big pay as anybody.—Very likely your barrel arrangements for packing outdoors will answer; but is it not a great deal more trouble, and, in the end, expense, than to have chaff hives that are always ready for both winter and summer?

ANOTHER DANGER AHEAD OF US.

A THREATENED INCREASE OF POSTAGE ON FOURTH-CLASS MATTER.

OUR readers may not all be aware there is a movement on foot to increase the postage on seeds, merchandise, etc., although it is now four times what it is in Canada; that is, we pay one cent an ounce, while the Canadians pay one cent for four ounces. I have written to our Representative from this district, and I have also written to Prof. Cook, to ask his help. Here is what he advises.

Dear Friend Root:—Indeed this postage matter is a subject of tremendous importance. We can each only appeal to our Congressmen; and when we can, write up the matter for papers, and send papers to our Representatives and Senators. Why not you ask all readers of GLEANINGS to appeal to their Congressmen? I don't think the bill can pass; but there is danger. A. J. COOK.

Agricultural College, Lansing, Mich., Mar. 2, 1886.

Later:—The bill has failed.

CHAPTER XI.

The laborer is worthy of his hire.—LUKE 10:7.

One of the most interesting things regarding any kind of work is the point where the cash comes in. When you set children at work, they usually like to see the cash come in pretty soon. A great many of them would like their pay every night, and some of them, indeed, think it a hard thing to wait until night comes. Well, we children of an older growth are a good deal that way. We do not like to work a great while without seeing some of the dollars and cents. Years ago, when I earned 25 cents by being at the head of the spelling-class more than any other pupil in the old schoolhouse, I debated quite a time as to how I should invest the 25 cents. I finally decided on launching out into the poultry business. So I invested the whole of my 25 cents in poultry. I talked the matter over with my mother, and got her opinion and experience. I suggested, that if I invested in poultry, I should get returns for my investment right away. "Why, mother," said I, "if I buy two good hens, they will lay two eggs the very next day, will they not?" She thought likely they would; so I purchased two old biddies with my 25 cents, and rejoiced in being the possessor of two large white eggs, almost before I had got my poultry yard and house ready for the occupants. I swapped my eggs to my mother for corn and other necessary feed. Like a wise and good mother, she taught me to sell my produce at a fair market price, and pay for the feed. Of course, I soon learned, as has many another juvenile poultry-keeper, that it does not necessarily follow that I should have two eggs every day in the year, simply because I was the possessor of two good hens. I think I figured out that, with good care, I could depend on *one* egg a day for *three* hens. This was over thirty years ago. I do not know how much advance has been made in poultry since that time. Probably some of the non-sitters will do better. But I think an egg each day in the year, for three hens, is a pretty fair average, even now. My juvenile figures demonstrated that, as a rule, one egg a day, judiciously invested, would furnish food for *five* hens, so there is not, or, at least, there was not then, any very dazzling profits in the poultry business, where one has to buy the feed and sell the eggs at the market price, to be consumed for food. Of course, if we are enabled to sell our eggs for breeding purposes, at one or two dollars a dozen, it puts quite a different shade on the business; and, by the way, we are to make our money by raising the best, and *the very best*, of every thing. The world is full of people who have plenty of money, and who are willing to part with their money for nice things—*nice* products, for instance, but who won't pay out their money at all, unless they can see something a little above the general average.

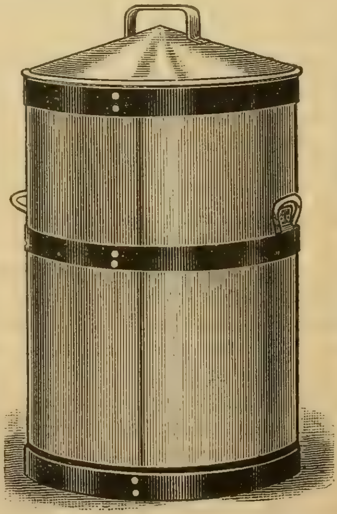
Now, this same idea is to apply to our plants. A little money is *very* convenient to have when you are starting out in any business; and it seems to go a great deal further, and do a great deal more good, when it comes as a result of that business. The friends have often accused me of having more of a liking for small bee-keepers than I have for large ones. They say I publish reports from some A B C scholar who has only one hive of bees, and correspondingly little experience, when I would entirely pass by a finely written article from one who counts his colonies by the hundreds, and his honey by the ton. I do not believe it is quite as bad as that, but yet I do not know but I ought to plead guilty, to a certain extent. I do love to see people start in business, especially, where they start in a healthy, self-sustaining way. I like to see a boy raising nice heads of lettuce; and when I see him on the market with a basketful, swapping these heads of lettuce for nickels, why, I just love that boy. I love the man or woman who buys his product, too, and I love the basket of lettuce. The whole transaction is a healthy, honest one. The boy is putting his shoulder to the wheel, and doing his part in the general economy of the world. He is a man in business on a small scale; and if he is thrifty and prudent with his little business, he will be so with a larger one. Why, we have God's promise for this very thing—"Thou hast been faithful over few things, I will make thee ruler over many things."

I suppose many of the friends have at

this date (it is toward the middle of March that I am writing) boxes full of beautiful little plants peeping forth from their mossy coverings, and asking, as well as they can ask, with their bright green leaves, to have more room and sunshine. How shall we get it? Windows warmed by stoves, greenhouses, cold-frames, and hot-beds, are all comparatively expensive. Very likely you have every inch of space occupied; may be you have boxes of plants, such as I have described, standing across the paths, so that when you go through your greenhouse you have to stoop down and crawl under, something as we did at Mammoth Cave, when we went through the passage called "Fat Man's Misery." Very likely you have boxes perched up in every possible shape, to get even a small share of sunlight that comes through every day or two. Well, what next? In most localities you can, by the middle of March, begin to make garden to some extent out of doors; that is, as soon as the frost is out of the ground you can put out hardy plants and sow hardy seeds. We want to begin to get rid of the expense of glass sash just as fast as possible, and yet we do not want to take risks, and have our plants either frozen outright, or greatly injured by being frosted. Let us work orderly and soberly and *surely*.

Where shall we have the garden, and how shall we fix it? Well, I would commence making garden in some protected spot such as I have mentioned for cold frames or hot-beds. If you can find a corner close up to some building, so that there is a protection on the north side and another on the west, to perfectly cut off north and west winds, you are all right. If the frost won't let you dig, clear off the ground so as to catch every bit of sunshine; and as fast as the sun thaws off a half-inch, scrape it off and let the sun get at the next half-inch, and so on. Pile these scrapings in a heap loosely, mixed with manure, and they won't freeze very much. Cover your ground at night with straw or old boards, or, better still, coarse manure. When you get down through the frost, dig your ground up and break it up fine to the depth of two feet or more, mixing it with manure, the best you can get.

Probably one of the first things you will get money from will be plants for early lettuce, cabbages, cauliflower, celery, onions, cress, etc. Now, you can attract visitors, and attract custom, by having this early garden neat and orderly. Weeding among these little plants, and pulling them to tie in bunches, is laborious and back-breaking work, and I think it pays to make sunken walks, or paths, something as we do in a greenhouse, so as to raise the surface of your beds, say two feet high. The way we do it is to get some cheap 2 x 4 scantling; drive stakes in the ground, saw them off square, and nail a scantling on top; then get some old boards, drive them into the ground a little, and nail them against the sides of the scantling. Now shovel the dirt out of the paths, and throw it over in the center, mixed with manure. If there is a peat swamp near by (and you can almost always find one), draw peat and mix it with the soil. Peat will not only make the ground light, but its dark color will attract and hold the heat-giving rays of the sun, and will make your ground thaw out a good deal quicker than it otherwise would. It also prevents crusting. Ashes are also an excellent thing. Gregory, in his new book on fertilizers, calls hard-wood ashes worth from 30 to 40 cents a bushel. And I notice that most of the agricultural writers put them as high. In very many localities you can buy great quantities for 10 cents a bushel, if you pick them up from house to house, where they ordinarily throw them away. Get a tinsmith to make you some cheap tin cans something like the one shown in the cut below.



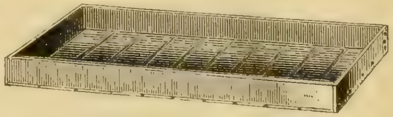
A CAN FOR SAVING ASHES.

It is true, a barrel will answer; but it is unsafe to store ashes in barrels, as has been repeatedly demonstrated. A tin can will last a lifetime, if properly cared for, and it is quite safe, light to handle, and easy to load up. Almost any tinsmith can make you a can holding about two barrels, for $1.50. He may have some damaged or rusty tin that he can work into it. For a dollar more you can get one of galvanized iron, with a cover to it, like the one in the picture. Leave these cans at the houses where they burn hard wood, and you will have your ashes all in good shape whenever you call for them. A few ashes raked into the surface when you put out your plants, or sow your seeds, will do almost as much good as guano or any kind of phosphate.

CAUTION IN REGARD TO USING ASHES.

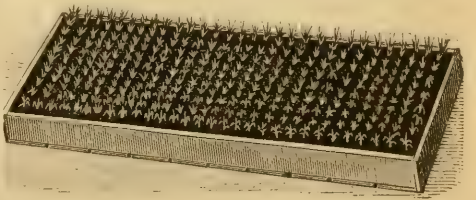
These, as well as guano and almost all other fertilizers, remember, must be applied in homeopathic doses, and at the same time be thoroughly mixed in with the soil. Last fall, when they were putting lettuce-plants in the central bed in our greenhouse, it occurred to me that a coat of ashes would be a good thing to stir in with the peat and earth put on top of the stable manure. Accordingly I went over to the house and got perhaps half a bushel. I poured the ashes down in a certain spot, and then tried to spread them all over the bed. As a matter of course, there were more ashes left where the half-bushel was first poured down than on the other portions where I raked it over. They should have been sifted over evenly with a sieve, and then raked in, say at least two inches deep. On a large scale, the best implement for the purpose I have ever seen or heard of is Kemp & Burpees' manure-spreader. Well, I raked the ashes in until I thought they were mixed enough. Then we set out our good strong lettuce-plants. They started nicely, except where that one-half bushel was poured down. The boys wanted to dig these up, when we found them wilted, but I told them to let them be, as I wanted to see just how too much ashes would act. Well, a great part of the plants died; but here and there one remained that was able to stand the dose; and by the first of February these few began to take hold and grow, and, oh how they did grow! It is only once in a while that I get a luxuriance of growth that satisfies me; but these plants satisfied me in every respect. The leaves had a rich, bright, dark-green look, and they unfolded and stretched out at such a rate that there was a big change visible each night and morning. They made enormous heads of lettuce in just a few days, when they got a going. Well, this satisfied me that ashes may be applied at the rate of half a bushel to every eight feet square, without doing harm, if thoroughly raked in and stirred up with the soil; and this fertilizer has one advantage over every other. It will never evaporate nor get lost. If the first crop does not use it all, the next will take what is left. Now, friends, save the ashes.

I told you what kind of beds we were making for raising plants. Now, much depends on starting right, and in having a system with this kind of work; therefore it behooves you to decide on a regular width for these raised plant-beds. I would have the scantling that runs along each side just far enough apart for common 3 x 6 sash to catch on lengthwise. Have one of the scantling a little lower than the other, so as to shed rain. Three or four inches will be enough. We want the beds made so that we can set in our shallow boxes, heretofore described, or so you can put the plants right into the earth, either way. For the first time in transplanting, we use shallower boxes, and made of lighter stuff, than those figured in Chapter IX. The kind we are using now for transplanting celery are 3 ft. long and 16 inches wide, outside. In order to get strength with lightness, we make them as in the cut below.



TRANSPLANTING-BOXES FOR SEEDLINGS.

To give drainage and strength, we have the bottom made of slats only three or four inches wide, and only ¼ inch thick. They are nailed on crosswise, as you will notice. Such light stuff would not be strong enough if put on lengthwise of the box. The sides of the box are 1½ x ½ inch. These are very easy to carry about, and answer just as well for small plants. From one of these boxes, the seeds of which were sown on the plan given at the close of Chapter VIII., we got 7500 plants. The plants were taken up, and set in larger boxes filled with soil, by means of the frame of poultry-netting shown in Chapter IX., so as to present about the appearance shown below.



A BOX OF WHITE-PLUME CELERY-PLANTS AS IT APPEARS WHEN FIRST TRANSPLANTED.

You will observe that there are 10 rows of plants, and 30 plants in a row, so it took 25 boxes, with 300 plants to a box, to contain just what grew in one single seed-box. The engraver has done his job pretty well; but nothing can equal, to my mind, the sight of these 25 boxes when the sun comes through the fleecy clouds during some March day, and lights them up as they stand south of the factory in their respective beds. Of course, we put sash over them at night when we have freezing weather. Do you object because this costs money? The boxes cost us about 10 cts. apiece, and I think they could be furnished without any trouble for 8 cts. apiece, in the flat; and it is just fun to nail them up on stormy days or winter evenings. Each 3 x 6-ft. sash covers 4 of these boxes, giving a little room to spare, so as to handle them easily. Do you object to this transplanting as a great deal of trouble? With the poultry-netting frame, almost any boy or girl whom you could pick up will tease to do the work when once shown how, and I think the transplanting can be done in almost any neighborhood for 10 cts. a thousand. You can let the plants grow in these boxes until they make a perfect mat. If it is too early to set them out, cut off the tops with a pair of shears, and in a few days they will be all out green again. The clipping-off makes a stout, thrifty, strong root. When you want to plant them outdoors, carefully slip the box off from this mat, and cut it up into little squares with a long butcher-knife, as I have before mentioned. If all the neighbors who see them don't want these little plants, with their strong mass of roots, your community is different from ours. What do you suppose the 7500 will bring during nice showery weather in May or June? They ought to bring readily $2.50 a thousand; or if sold in hundreds, 40 cts. a hundred. You will notice by the prices in the seed-catalogues, that they charge a great deal more—some of them going as high as $10.00 a thousand for good strong celery-plants early in the season. Suppose, however, you do not sell the plants, but set them on good soil. At 5 cts. per stalk (and good celery rarely retails for less than this) your crop would bring you $375. And this is all the proceeds of one little box of seeds.

The same thing may be done with cabbage-plants, and, to a certain extent, with lettuce-plants. We sold a barrel of heads of lettuce last week at 25 cts. per lb., giving us about $8.00 for what grew on perhaps 8 feet square of ground in the greenhouse; so the first crop from our greenhouse brought us 12½ cts. per square foot of ground. Well, when the lettuce was thinned out we put radishes between the rows, and the radishes are now selling for quite a little sum. After the lettuce was *all* out, tomato-plants were put between the radishes, and they are now making good growth, and will have all the ground as soon as they can use it. The ground in these beds was made perhaps one-fourth part stable manure. Guano was afterward dug in between the rows. In fact, it was manured up to the highest point, in order to have it bear continuous cropping; that is, we have the ground constantly full of roots, and the surface of the ground almost constantly covered with foliage of some kind. Instead of taking the crop entirely off, we take out every other row, and sometimes every other plant, and then some other plant goes right in between. You see, brains are needed in this work; and who does not feel happy to have his brains all employed in something useful? Sometimes people employ their brains and their waking moments in thinking of a quarrel with a neighbor. What a contrast! Well, I have told you what can be done with a little bit of ground in the way of lettuce and celery. When these get so they can go outdoors, we want to give the space under the glass to tomato-plants, and others of a tender nature. We are putting tomatoes now in the place of lettuce and radishes, and shall soon have our greenhouse almost entirely filled with tomatoes, while these other things grow outdoors. Now, in regard to what may be done with tomatoes, pushed along in advance of the season, I will let friend A. N. Cole, from his "Home on the Hillside," speak. Perhaps I should explain, before giving his letter, that our beds outdoors are warmed by letting the exhaust steam, after it has warmed our factory, go into those stone reservoirs, just above the water-line. The steam warms up the stones and the water, and the ground for several feet each side of these reservoirs, so much that it seldom freezes, unless the temperature goes pretty nearly to zero; and when it does freeze it is only a little crust over the top, which thaws out very quickly. With the aid of steam, it forms a veritable hot-bed, Well, I had corresponded with friend Cole in regard to this, and he alludes to it in the following letter:

RAISING TOMATOES BY THE NEW AGRICULTURE.

Dear Brother Root:—I confess to uneasiness in regard to tomato-plants. Mrs. Cole, by great painstaking, and with much of labor, aided by her husband, succeeded in setting upon our trenches, about the middle of May, the first of our plants in blossom, grown to a size in the bay-window, and "soul carting" the boxes day after day for two months on every warm day till acclimated, and "harvested" our first large, ripe tomato one week later than our great strawberry show; to wit, July 13th. At this date, tomatoes had found their way to our town from Charleston—pale, sickly-looking, and soft—*unfit, in fact,* for use, and yet finding ready sale at ten cents per pound, retail, costing our dealers 8 cents by the crate. Those from the Carolinas, as well as my own, were of the "Early Cluster" variety, earlier by two weeks than any other, and though least valuable in fact, nevertheless sold readily in all of the markets of our State, holding up to prices from eight to ten cents per pound at retail to about August 1st.

I think I am safe in saying, that millions of pounds of the Southern tomatoes were sold in this State alone during the last half of July. Here is where the oil cloth sold by Henderson will come in to good advantage. A skeleton frame of wood, consisting of stakes, open at top in the form of a clothespin, into which connecting-bars may be dropped, and pinned at their ends to prevent spreading, would give you a row of tomatoes ripening by slightest surface protection with the Henderson oil cloth in the months of May and June. You might need sash during February, but these could be above your skeleton frame; and so soon as the tomatoes are where cloth protection will do the work, the sash can be used elsewhere.

Perhaps the better way would be to protect by sash, exposing on every sunny day, till the blizzards have passed, and, when safe to do so, remove the sash and substitute the skeleton frame and oil cloth till all danger of frost is passed.

What I especially covet is about ten or twelve, or possibly a score, of "Early Cluster" plants, and a corresponding number of other varieties, to be supplied me as far advanced as possible, that I may set early, protect, and secure tomatoes as early as it is possible to realize ripe ones in this latitude.

I have had so much to do, and my resources have been so taxed in all ways, that your beginning has been a profound satisfaction. I propose to have all ready in the fall, to push the hot-water feature myself next winter. In the meantime, *your* success is something I am watching with all-absorbing interest. I feel very sure—yea, morally certain—that, if you will only buy good firm cotton cloth and dip it in oil, thereby making your own oil cloth, the protection will be found complete. Do not fail to provide me with the tomato and squash plants. I should like, also, a few very early and well-rooted cabbage-plants. Write me as often as you can.

Your friend, A. N. COLE.

HOME ON THE HILLSIDE,
Wellsville, N. Y., March 9, 1886.

I have given place to friend Cole's letter, because it shows us what may be done with large, strong, early tomato-plants. We have just sold off the crop of lettuce from our central bed in the greenhouse, where I got on too many ashes, and we are to-day, March 12, filling the bed with tomato-plants of the "Early Cluster" variety, having their second pair of leaves well begun. We are setting the plants out with the poultry-netting frame, so as to have them come about 3 inches apart in the row, and rows 5 inches apart, for better opportunities for cultivation. The plants will stand here until they begin to crowd so much they demand extra room, and then we will remove them to the ground over the reservoirs, covering them as friend Cole suggests. We have had a good opportunity of testing the oil cloth furnished by Peter Henderson, but it is altogether too light to in any measure take the place of glass sash. I have, however, found an article that works splendidly, and gives perhaps as much protection as glass, but it does not give as much sunlight in the daytime. This material is strong cotton cloth, a grade that we term "Indian Head." It retails in the stores for about 7 or 8 cts. per yard. When we needed the glass sash for our newly transplanted celery and cabbage plants, the sash were taken from the cold frame as shown in Chapter X.; and in their place we substituted cotton cloth, as mentioned above. First we were greatly troubled by the wind, and I found it necessary to fasten a long strip of wood to the edge of the cloth on each side. The cloth was attached to the strip of wood securely by nailing a strip $\frac{3}{8}$ x $\frac{7}{8}$ along its whole length, with the cloth between the two pieces. Some similar strips were screwed up and down each gable end. We now had it secure, but the frost went right through it when the thermometer was down to 10°. It didn't answer in the place of glass at all. Finally I instructed our painter to give it a coat of boiled linseed oil. It took several days for this to dry, but the oil has filled the pores in the cloth so that it not only stops the wind and air, but it holds water; and down by the eaves we sometimes after a rain find a couple of pails of water where the cloth has sagged between the rafters. It now keeps out the frost about as well as glass; but we find it necessary to bank coarse manure along the sticks that hold the lower edge of the cloth. You will see, by turning to Chapter X., that this cold frame is 23½ feet long. Well, we found at the lumber-yard some long narrow boards, this length, perhaps 6 in. wide, to hold the edges of the cloth. Suppose, now, after a cold freezing night, we have a warm sunny day, and by 10 o'clock the plants would be better without any covering at all. The course manure is pushed from the stick on the south side, and a man at each end will readily roll up this oil-cloth covering, and it is all out of the way in a minute or two. The frame may be covered and uncovered about as quickly as you would take off two of the glass sash. The expense of the cloth for this whole cold frame was only about $2.25. Two gallons and a half of oil and three hours' time, would make about $2.00 more, making about $4.25; or say $5.00 for sticks to roll it on, and all, while the 14 sash used to cover this same cold frame would be worth $25.00 or $30.00. I do not know how long this oil cloth will last; but it seems soft and pliable, and with care will doubtless last a great many years. Such a sheet is very valuable, many times, for thrashing grain or seeds. It is 4 yards wide and 8 yards long. Where we wish to get as much heat as possible from the sun's rays, I presume glass would be considerably better. But the air gets very hot through the oil cloth if the gable ends are not open promptly as soon as the sun has been out a little time. Another advantage in using cloth in place of glass is, that the heavy expense of breakage is avoided. We find it almost impossible to handle sash without breaking them more or less. I have learned this pretty well: That it is never safe to set up sash on end or on edge. When you wish to lay them down, put them down flat. Unless you do, the wind may spring up unexpectedly, and flop them over; lay them down one upon another, so no wind can get under any edge or side, and they are safe. In Jersey City I noticed the sash were piled up at each end of the beds, one on top of another, so as to make a square true pile. Sash is oftentimes handled more than is really necessary. When the days are not very warm, the sash may be tilted or moved to one side, so as to let the hot air escape from underneath, without taking them entirely off. It is, however, dangerous to take risks in leaving the sash off when appearances indicate at night that there will be no freeze. Almost every season we have lost more or less plants by a sudden change during the night, when we did not expect it. Bear in mind, we are to make our money by having all sorts of garden stuff in advance of the market and everybody else, and it does not pay to take risks. We want to make a sure thing of the operation.

CHAPTER XII.

But when thou art bidden to a wedding, go and sit down in the lowest room; that when he that bade thee cometh, he may say unto thee, Friend, go up higher.—LUKE 14: 10.

SELLING YOUR PRODUCTS.

As soon as you have any thing fit for sale, it must be sold; and I am not sure but it requires more brains, more energy, and more perseverance, to sell stuff at a fair price, after you get it, than to raise it in the first place. Now, don't say you haven't any faculty for selling such produce. If you want to build up a business, you must oblige yourself to learn the trade of selling things; and it seems to me that the first and greatest essential to success is that you commence with love to God and love to your fellow-men. These pages are not written to people who are well to do in the world, but for those who are poor and needy. If you have plenty of business of your own, remember that, although these pages may interest you, they were not written for you. They were written for the man or woman who is out of work. And another thing, if you have any *false* ideas in your head in regard to respectability in earning an honest living, they must be gotten rid of.

When you get a lot of nice lettuce ready for the market, and there is no demand for it, you must *make* a demand. When the plants begin to crowd, take out every other row, and finally every other head; and if you have more than you want to plant somewhere else, or if they are too large for transplanting, you must sell them. With a sharp knife, cut them off just at the surface of the ground. Pull off the faded and untidy leaves, and rinse the others with clean water. If the heads weigh about a quarter of a pound each, they are all right to be sold for a nickel apiece; or if it is early in the season, say February, or if it is where there is a good market, heads weighing two ounces will often bring a nickel. If the plants are so crowded as to be small, tie them in little bunches to make two or four ounces, as the case may be. Put them in a neat clean basket, and start out among your neighbors to build up a trade. Will some one say, "I wonder if you think that *I* am going about from house to house, to peddle lettuce, like some old market-woman?" My friend, I do expect you are going to do just that; that is, if you get help from these pages. See the text at the head of this chapter. If you are already in business, and have got started, and have a horse and wagon, all right; but I am considering now those who have nothing to do. You want a nice clean basket, and you want your bunches of lettuce tied up with some neat-looking string. Choose some color that does not soil easily. Wash your face and comb your hair; and may be you had better put on some clean shoes and clean clothes every time you go out to sell goods. A gardener is often necessarily pretty well covered with mud and dirt. When he sells stuff he must go into people's houses, therefore he wants to look reasonably becoming. Be civil and courteous, kind and neighborly, but don't waste time in useless gossip. Let your friends see by your movements that you have lots of business; and in this case I don't think it will be amiss in God's sight if you move about as if you *had* lots of business, even though you *haven't*. If you get into the habit of moving around spry, it won't be very long before there will be abundant need of economizing the minutes. Let your stuff do the talking as much as can be. Let everybody see what you have on hand, and tell them it is only a nickel. If it is muddy weather, be careful how you track mud on the clean steps or porches, or into the house. Work hard for the good of the people whom you meet, and let your face show by its expression, love to God and love to your fellow-men. Some radishes, white and red, tied up in bunches and put with the lettuce, will help to make your basket very attractive. Get out in the morning before breakfast with these things, if you can. If you can not get clear around, the next best time is before dinner. When the weather prevents your making your regular trip before noon, get around in the afternoon as quickly as possible. While you have a proper regard for your health, don't be too ready to give up on account of the weather. "He that observeth the wind shall not sow; and he that regardeth the clouds shall not reap." If you are going to be a successful gardener, you will soon learn to love to work out in the rain, if it does not rain too hard. Don't be troubled if sales are slow and small to start with. Do your duty, and trust God for the result. Many of our most wealthy men learned the secret of success in business in humbler callings than selling garden stuff. As soon as you can get some nice onions in bunches, they will sell among a certain class of people.

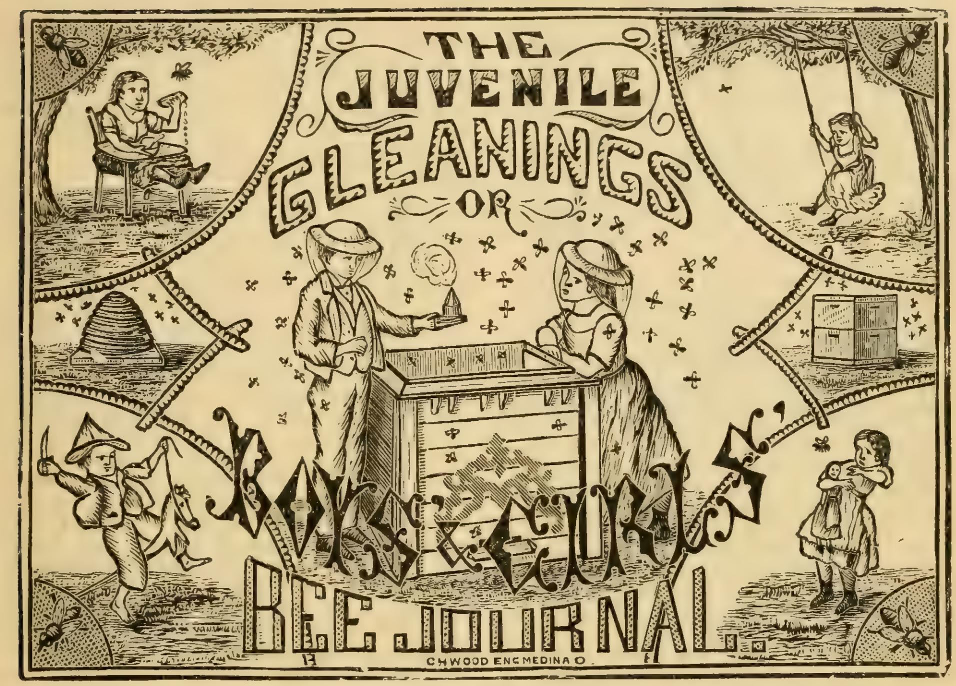
Don't make a mistake, and sell your stuff too cheap. Last fall, when our first yellow rutabaga turnips began to be fit to use, we started them at 25 cts. a peck, which, you know, is $1.00 a bushel. Well, the people got so much in the habit of paying that price for them, that we sold almost our whole product at a dollar a bushel. They were real nice, however, and that was the secret of it. Just as we were selling the last of them, farmers began to bring them to town, and sold them at 25 or 30 cts. a bushel. Now, had we commenced to offer them at 10 cts., instead of 25 cts. per peck, they would not have sold much faster, nor would people have been much better satisfied, probably. When you have secured a crop in advance of the season, don't be afraid to ask what it is worth, or what it will bring. Friend Cole speaks of 10 cts. per lb. for early tomatoes. If you can sell all you have raised, at 10 cts. per lb., that is positive proof that they are *worth* 10 cts. per lb. The products of the soil are always worth what they will bring. Strawberries are now quoted at $6.00 a quart in New York; and if there are people in that city who are willing to pay that price, it is right for the man who raised them to get it. If it is too high, let somebody else compete with him, and bring the price down. The world is full of people who are watching for a good margin on any thing. If somebody else is selling garden stuff besides yourself, by all means have your relations with him of a friendly nature. Divide the town, if you choose; but whatever you do, don't cut against each other, and thus cut down prices. If there is not room enough for two, talk it over, and let one buy the other out; or let one take one line of goods, and the other one, another. Don't quarrel; and don't, under any circumstances, hurt each other's trade. When your trade increases sufficiently, have two baskets made so as to hold as much as possible, and so you can take one in each hand. If something like the old-fashioned neckyoke, with which our fathers used to carry water or maple sap will be a convenience, don't be ashamed to make use of it. It is honest and respectable to bear burdens. By no means cultivate oddity or eccentricity, but choose such things as are real helps to you in your business; and if people do smile when you commence work, they will soon get used to it when they find you are bent on a regular, steady business, year in and year out. Nothing helps a man like sticking to his calling, as if he meant everybody to understand he meant it to be a life purpose with him. Meet your customers regularly, if possible, and in regular order. When the weather is suitable, a light wheelbarrow will be quite a help. Get up with the sun; work every hour in the day; and when you can not see to work outdoors, read the various periodicals devoted to your line of industry. Study books on gardening, which are now to be had by the score.

Pay as you go, and encourage your customers by every possible means in paying cash down. Always keep change in your pockets—enough to make change rapidly.

A great many people waste time and make blunders because they do not use the established plans of doing business. As an illustration: Suppose somebody takes a bunch of radishes and a bunch of lettuce, and gives you a half-dollar. Lay down the vegetables with one hand while you scoop the change from your pocket with the other hand. Then count this way: Lay the goods in the pan or on the table, or such place as is most convenient, counting as you drop them, "10 cts." Then take a dime from your handful of change and lay that beside them and call it "20 cts." Now put in a nickel, and say "25 cts.;" then put in a quarter, and say "50 cts.," counting out loud. You have the lady's half-dollar, and she has *her* 50 cts. in *goods* and *change* on the table or in the pan. You see, there is no subtracting by this method—it is just addition. She gave you a half-dollar, and you gave her half a dollar back, the vegetables making 10 cts. of her half-dollar. Make change this way all along, count out loud, then tell your customer to please see if it is right. Make everybody you deal with count after you, and express themselves satisfied; if you don't, you will have misunderstandings, contradictions, delays, and perplexities. The time-clerk in our establishment, when she pays the hands Saturday afternoon, has positive instructions to insist that every man count his money. Sometimes they grab it and push it in their pockets, all wadded up. She tells them her instructions are that every hand must count the money, and see if it is right. Two or three times they have neglected my instructions. For instance, a young man who had been recently employed, came to me saying that the time-clerk gave him a dollar too little, and that she refused to make it good. She declared she gave him the dollar, and he counted it, and he said it was all right. He admitted this, but said he made a mistake when he counted the first time. After arguing the matter some, I directed that the dollar should be given him, to keep peace in the family. How do you suppose it turned out? When the room where he worked was swept out, the paper dollar was found in the shavings. The time occupied by the controversy and by different hands stopping to listen to the argument, and to hear each one's story about it, cost me, perhaps, something near the amount in question. The time-clerk was an old hand at the business, and was right. And it will generally be found so. The one who is familiar with his routine of business is not so apt to make mistakes as one who does not handle money very often. The largest amount of work can be accomplished in a day if you can do it so surely and accurately that you won't be hindered by accidents and misunderstandings. Have your wits all about you, and do every thing as if your life depended upon being accurate and quick. If you are a sleepy individual—one who is in the habit of sitting down in the sunshine, and yawning, and telling stories, and gossiping in the middle of the day, I *can not help you.* You will probably be poor all the days of your life, and unhappy besides. Why, it sometimes seems to me *awful* to see great stout men sitting still, or lounging around with their hands in their pockets, during these bright spring days.

Now, then, take a low seat and work hard till your fellow-men bid you sit up higher. Astonish your customers by the beautiful heads of lettuce—by strong thrifty plants of celery and cabbage—so strong that almost anybody can see that each one is sure for a crop, and have some great thrifty handsome tomato-plants ready just at the time when everybody will be wanting them. A good strong plant, well rooted, ought to be worth a nickel, giving your customers a pot to carry it in. The same general rules will apply to every thing you raise on your ground; and when you become an expert in producing nice plants in small beds, you can extend the same process to acres, working slowly and carefully, and increasing your area only so fast as you can do it and do your work well, according to the spirit of the text at the head of this chapter.

To be continued April 15, 1886.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

Thou shalt neither vex a stranger, nor oppress him; for ye were strangers in the land of Egypt. —Ex. 22:21.

ONE day while I was sitting at my desk reading letters, I think it was about the middle of February, a stranger came up to me and asked for work. Request has been made so many times during this past winter, that I have got into the habit of being perhaps a little short and a little positive in telling them I had no need of any more help. This man bore very plain evidences of belonging to the class called "tramps;" and one's first impressions were that he was an intemperate man. His clothes were ragged, and he was a pitiful-looking object. After I had told him positively that there was no possible chance, and that old hands had been waiting all winter for a place, he started off with a dejected look that touched my heart. He was quick and keen, however, for he glanced back, and, seeing that my eye was on him he turned around and approached again.

"Mr. Root, could you not give me some kind of work to do, to pay for some sort of an old coat? My coat is very ragged, as you see, and I should be very glad to pay in work for a better one. I don't want to beg; and if you will give me a chance, I think I can show you that I am willing to work for all I ask for."

The appeal was more than I could stand. I replied, "Why, yes, friend, I will give you something to do, to pay for an old coat," and I set him at work piling green basswood plank. Perhaps I need not tell you that this was a job that the average tramp would soon slip out of. But our friend didn't slip out of any thing. He took hold and worked so well that the men with whom he was working wished me to let him keep on a while. I asked his name, and told him that, if he worked as well as he had so far done, we could probably use him for a week or two, provided he could comply with the conditions of our establishment.

"Mr. Lewis, am I right in judging that you are or have been a drinking man?"

"Mr. Root, you have been very kind to me, and I will tell you the truth. I do get on a spree occasionally."

"Well, my friend, you probably use tobacco."

"Why, Mr. Root, I do when I can get it; but I have been so very low down lately, that I have not had any money to buy it."

"Well, now, perhaps you won't like to work for us when I tell you that we employ no man who uses whisky or tobacco in any form. If you think, however, it would be a good thing to break off all these things, and try to be a temperate and upright man before God and your fellow-men, we shall be glad to have you stay."

He promised to try it, and said he had worked at places before where they had the same rules. When I suggested that he lost his place by his habit getting the better of him, he acknowledged it. Sunday afternoon I called at the place where he lodged, and asked to go up into his room. I had before urged him to come to meeting. What do you think I found him doing? He was working slowly and painfully with needle and thread, trying to darn up his old coat so it would be fit to go to meeting after dark. He looked up at me with a frank, honest look, that I think was truly genuine, remarking, "Mr. Root, now may be I a'n't doing just the right thing, to mend my old clothes on Sunday; but I do it solely that I may be a little more presentable at meeting to-night. If you think I am wrong, I will stop it in a minute."

I replied at once, "No, no, my good friend, go on with your mending. It is all right, I am sure, in the sight of God; but while you work I want to talk with you a little."

I had won his confidence, and he told me of a wife and two children in England. They did not use him well, and he had come away off across the ocean. I suggested that it was on account of drink, and he finally admitted that perhaps it was. He had had good situations as stone-cutter, and had earned good wages; but he always lost one place after another, sooner or later; and when I found him he had spent one night in the infirmary, and then started out again in the cold wintry weather, to find some place where he might work until whisky should cast him out again. I held up before him the cross of Christ, and the Bible promises. When I asked him to kneel with me he replied, "Most certainly, Mr. Root," and quickly got down by my side while I prayed for him and others like him. The tears ran down his cheeks; and although he didn't promise much, he gave as sure evidences to me as I think I have ever seen, that he was truly penitent. He attended our Murphy temperance meetings, and went about, day and night, with a blue ribbon on his coat. I told the story to some friends, about his darning his old coat that Sunday afternoon, and we soon furnished him quite a respectable drab coat and vest, which were given him without any charge. He seemed very grateful, and was, to all appearance, as honest and faithful as a man could be.

Last Friday morning, March 5, one after another told me that Mr. Lewis had broken his pledge, and was too drunk to be talked to. In the afternoon and evening, four or five of our young Christians—yes, and some old ones too—hunted him up and tried to reason with him. Of course, our frank, honest, faithful friend was gone. Another light blazed from his eyes, and another spirit had possession of his faculties. He seemed possessed of a devil, as we read about in the Scriptures, in olden times. Saturday afternoon, after I came home from church, I was told he wanted to see me. I knew what the matter was, for I had told the time-clerk not to pay him wages while he was intoxicated. He demanded his pay. As I knew it would be used for buying more whisky, I objected. I finally told him in plain terms why I could not pay him his money. I asked him if he would tell me where he got the wherewith to get drink. At this remark it seemed as if Satan himself blazed forth from his eyes, as he refused to tell; and he added something like this: "Mr. Root, if you think you can keep back my pay, just try it on." And then he turned on another strain, and begged piteously for even two dollars, and prayed for Heaven's blessing to come down upon me if I would grant his request. I told him I would give him all his pay if he would promise me, even while he was intoxicated, not to drink any between then and Monday morning, and then come to me. He objected, and argued; and I believe now the man is truthful when in his right mind, and, that even while intoxicated, it was a hard matter for him to break his word. At length he gave me the promise and got all his money, except his board-bill, which the landlord where he boarded asked me to keep back. As I gave him the money, I asked one of the girls to bring me a good long piece of blue ribbon, and I tied it in the button-hole of the coat we had given him, hoping it might help him, and help the saloon-keepers to keep temptation out of his way. He went away pleasant and good natured, thanking us all. Had I done all that a Christian ought to do, according to Bible precepts, for the stranger that came to our gates? I had tried my weak hand in coping with Satan and the powers of darkness; and although it had amounted to but little or nothing, I felt that I had done the best I knew how, according to the best of my poor wisdom. For the sequel to this sad little story, see Our Homes, in this issue.

A SWARM BECOMES ENRAGED, AND MAKES A FURIOUS ATTACK.

DURING WHICH HALF THE BEES LOST THEIR STINGS AND THEN LIVED THREE WEEKS.

ON page 70, 1886, Ernest asks: "Does any juvenile, or anybody else, know of such a case, as that a bee lived two days or after?" Well, I once had a swarm of bees whose queen I bought of a man by the name of Good, somewhere in the State of New York, in the year 1868. I bought her for a pure-blood Italian queen; and though her bees were most beautifully marked, I have often thought they might be mixed with the Egyptian variety, on account of their inveterate hostility when they swarmed. They were not very ill to handle at other times; but when they swarmed they would hunt everybody and every thing—dogs, cats, horses, and chickens, and sting them with vengeance. On one occasion I was sitting in the door of my residence and saw them commence to swarm. I got up immediately and started to get a hive; but by the time I was half a dozen steps from the door they

ATTACKED ME IN GREAT NUMBERS.

I then returned to the house and procured a bee-hat, and gloves with long gauntlets; and having donned the aforesaid bee-apparel, I again sallied forth and was met by thousands of infuriated bees which stung me through my shirt, and stung my gloves and left their] stings so thick on my gloves and hat that you could not touch them with the end of your index finger without putting your finger on a sting. I did not count them, but I am satisfied that two thousand would not cover the number. An Irishman came to me at the time, and was stung in like manner. When he first made his presence known I said to him, "Tom, you had better go to the house; these bees will sting you to death."

"Oh, no; the leetle fellows would na hurt a body;" but about that time I heard him cry out, "Och! houly Moses!" I then looked around, and he was walking off slowly, scraping them off by the handful, first with one hand and then the other.

In one hour after they were snugly hived, they were as tame and submissive as before they swarmed. I observed them closely every day for two or three weeks. At first there appeared to be nearly or quite as many stingless bees at work as those unharmed by the loss of their stings. I am satisfied that some of those

STINGLESS BEES LIVED AT LEAST THREE WEEKS.

But what was most remarkable, I at that time kept a trough in a convenient place filled with urine, and in which about half a teacupful of salt was dissolved; and on the next day after the swarm came out I happened to pass this trough of stink-bait, and was surprised to see great numbers, perhaps a quart, of these stingless bees sucking at the stink-bait. I afterward went nearly every day to see and watch or observe how long they would go to it, and found them there in great numbers, gradually decreasing every day for some three weeks; so I am satisfied that a bee, if left at liberty, will live about or nearly as long after losing his sting as he would otherwise have lived.

Further, I was once put on a committee, with two or three other gentlemen, to investigate this matter. I took a small nucleus hive, only some 4×3×5 in. deep, filled with comb honey and some eggs and a young queen, and about 100 stingless bees, and moved them 1½ miles. They lived till some of the brood hatched to take their place, but I think salty stink-bait, or some other medicine, is actually necessary to their existence. JOHN L. GREGG.

Tempe, A. T., Feb. 2, 1886.

You have given us some very valuable facts indeed, friend G., that bees, after the loss of their stings, if allowed their liberty, have lived and gathered honey for some time afterward. Your experiments seem almost conclusive, that the loss of the sting does not materially shorten the lives of the bees, providing they are allowed their liberty. It seems to make considerable difference whether these stingless bees are confined, or given their freedom. I have found, however, by experiments recently, that single bees, without any bodily injury, will live four or five days, and even a week; but that a dozen or so together will survive sometimes three weeks. If the juveniles had caged their stingless victims with other bees, their reports would probably have not conflicted with yours; at any rate, their stingless bees would probably have lived longer. —You will notice that your conclusions in regard to salt and other like deposits are in line with the suggestions expressed by friend Greer, on p. 178 of last issue. As to whether the salt had any curative properties upon the bees above alluded to, might be a question. Has any one had an experience similar to the facts as given by friend G.? One or two more such would settle this problem of stingless bees. ERNEST.

JUVENILE·DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

HONEY AS A REMEDY FOR COLDS.

I HAVE a question that I wish to ask the mammas, and the little folks are to do the reporting in GLEANINGS. Much has been said in praise of honey as a remedy for coughs, croup, and sore throats. The question, then, or problem, if you choose, is this: Is honey a valuable and effective remedy for colds? or are its supposed curative properties a mere whim? During the month of March, when colds of all kinds are so frequent among our little folks, and older ones too, there will be a good opportunity to make a careful test. Perhaps many of our mammas are already satisfied in their own minds. From my own observation, California honey will seemingly check or stop a hard cough, when basswood honey has no effect. I want the juveniles to report, also, what kind of honey seems to be better than others for colds. Does California honey seem to have special virtue in its curative properties? Let us have no guesswork; but if honey is a valuable remedy for colds, as is the general impression, then we surely ought to know it. To illustrate the difficulty of deciding correctly in this matter, pardon me for telling you a little incident of my short married life. Now, I haven't any Huber of my own from whom to draw my illustration, but we have a little nephew, Arthur, staying with us. One night he had the croup, and neither myself nor my wife knew what to do; so we just stood and looked at him, while trying in vain to remember what our mas had done when we were little and had the croup. We had plenty of honey in the house, but we never thought of that. Finally, Mrs. R. said she had seen somewhere, that they gave ground cheese-rinds and hot water. This she quickly prepared and gave him. Under the seeming stimulus of this dose he got better. If we had given him honey, and the results had been the same, we might have thought there was great virtue in honey. At another time when he had the croup, we gave him nothing, and by morning he was better. In the first place, supposing we had given him no dose, what would have been the result? Our mammas will see the difficulty of deciding whether a certain remedy does or does not prove effective. Repeated trials, however, as doubtless mothers have had, will very likely decide pretty closely. How many reports shall we have next month, for or against the curative properties of honey? This is a matter upon which, with the help of your mammas, many of you can report.

ERNEST.

"HONEY-DEW A GREAT HELP."

We children watch the bees gather honey from the clover-blossoms. Pa says honey-dew is a great help to them. I was in the yard last summer, and a bee stung me on my foot.

Smithville, Mo. HARDY and NELLIE JENKINS.

BEES IN OREGON.

My father and the boys have 73 stands of bees and I have two. Last winter it was snowing the day after Christmas, and this year it was sunshiny. The bees were flying on the 26th of December. I like bees, but I do not like honey.

Harmony, Oregon. HESTER RUSK, age 10,

DO THE LARVÆ ABSORB OR EAT THEIR FOOD?

My pa has 50 swarms of bees, and has them in winter quarters. I have a little brother four years old. I am interested in bees, and I want to ask a question. Do young bees eat in the cell, or do they absorb the food? Why do they turn their head from the food. NICHOLAS JONES, age 13.

Delaware, Ohio.

I consider your question in the department of Our Own Apiary, which see.

ERNEST.

WHITE HONEY IN A BEE-TREE.

My uncle, F. H. Gorton, is a bee-hunter, and he found a tree on our place with nearly 50 lbs. of nice-flavored honey, and all white comb, arranged up and down in the tree as nicely as he ever saw in a hive. He says he never saw any like it before, and he has dealt in bees always.

MAUDIE H. MORENUS.

Sherburne, Chenango Co., N. Y.

HOW PHEBE GOT HER THUMB STUNG.

I tried to make my bee sting a piece of cloth, but it stung my thumb, at 12 minutes after 11 o'clock in the morning. Mother put it in a cage, and I gave it some honey. It died some time in the night. The next day I tried another bee. It lived 7 hours. It looked like an old bee when we got it. I can not write much, because I could not go to school last summer, so mother is writing for me. I can do a good many things to help her, through.

Whitby, Ont., Dec. 28, 1885. PHEBE ORVIS.

A BEE LIVES 58 HOURS CAGED ALONE.

We got our bees on Christmas morning. Mine stung me on my wrist at five minutes past ten. It lived 58 hours. We had two bees left when we got through, and we put them in a cage together. They went to fighting at once, and lived one hour and ten minutes. I saw through the microscope a drop of poison on the end of a sting. We had about 3000 lbs. of honey last season. We have two colts. One of them will follow me around when it wants any thing. SPENCER ORVIS, age 10.

Whitby, Ont.

We now have record of a bee living 58 hours or nearly two days and a half. Next time you try, cage with other bees.

ERNEST.

WATCHING THE TOES OF THE LITTLE BEES.

I wanted a bee too, so Spencer helped me, and made one sting a piece of cloth at 22 minutes past 11 o'clock, and it lived till 9 o'clock the next morning. I saw it put its toes around the wire of its cage to hold on when it walked. I have a slate and book, but I can not write, so mother has written this for me. BERTHA ORVIS, age 5.

Whitby, Ont.

It is real funny to see the bees' little feet trip over the wire in the cage, is it not?

ERNEST.

IS PACKING IN WINTER NECESSARY?

One year ago last fall my pa had 9 swarms of bees, and my sister had 2 that my pa's cousin gave her. Pa packed them all but two—one of my sister's, and one of his own. His cousin said that they would do better without packing, but pa thought not; but seeing that he gave my sister the bees, pa left one of them out, and one of his. Both of them died, and two more besides. The bees died all around us last winter very badly. We have now increased them to 19, and have them all packed. We use the Simplicity hive. LOUISA E. GREEN, age 11.

Lyons, Ohio, Feb. 3, 1886.

Thank you, friend Louisa, for the facts you give. Then you think it does not pay to leave bees on their summer stands during winter without being packed, do you?

ERNEST.

SOMETHING ON BEE-STINGS, FROM AN OLD BOY.

I see by the last issue of GLEANINGS that the bee-sting business is not yet settled. Well, little boys and girls, I will tell you what I know about it, and what I don't know. Several years ago, while working in the woodshed, I saw a bee hovering about an old piece of comb that had carelessly been left there, and I noticed at once that she had lost her sting; but, for fear that I might be mistaken, I caught her and made a careful examination, and am entirely satisfied that she had no sting, although she appeared to be in splendid health, and as lively as a *whole* bee. I do not know what she was looking for, but suppose it was for honey. But now the question arises, How long was she stingless? That's what I *don't know*; but from all appearances, she had been so for several days.

I want to say to Emma Jansen, that I also have at least one carp that does not bury itself in the mud in winter. I can see it almost every day, as I have it in a small pond by itself. I am a small boy of 26 years, and weigh 155 pounds—small compared with some others. HENRY.

Your observation is in line with friend Gregg's article in another column, and I think it is quite likely the bee you mention had been without its sting for some days. On the other hand it seems to be pretty well established that, the stingless bees will not live long when confined. ERNEST.

THE HONEY-PLANTS OF GEORGIA, AND HOW SOON THE BEES BEGIN TO WORK THERE.

There are lots of honey-bearing trees and plants here. Among them are the honey-locust, persimmon, black gum, sourwood, and others. The cotton plant produces some honey.

Bees begin to bring in pollen from the 10th to the 15th of February. Our bees are in good condition, with plenty of honey. We had lots of cold weather last fall. The thermometer has been down to 16 above zero, and as many as three mornings together, below 20. **FLORENCE E. KELLEY**, age 12.

Harmony Grove, Ga.

SHALL WE SELL HONEY TO SALOON-KEEPERS ?

Raising bees has been very profitable to my father. Unfortunately, he has to sell most of his honey to bar-rooms. Well, I suppose they might just as well use honey as sugar. There is no law to prevent the use of liquor. My father has 64 hives. No one in the neighborhood has as many.

LOU FRIEND, age 13.

Chester, Va., Feb. 8, 1886.

Friend Lou, there is a moral point involved in your letter. Of course, I would not dictate for your father, but I think I would sell the saloonists none of my honey, providing they intended it for use in their traffic. If they intend it for an honest purpose, I do not know that I should hesitate to sell them all the honey they wanted. **ERNEST.**

HOW THE CHROMOS AS PRIZES ARE APPRECIATED.

I received a lovely panel chromo from you; many thanks for it. Brother Fred has his bees packed. He has the hives set in big boxes, and chaff around the hives. He has a house-apiary. I like to work with bees, but do not like honey. The first swarm Fred ever had, he had in a box hive, and soon he sent and got one of the Simplicity hives, and transferred them into it. He likes the Simplicity better than any other style of hive.

Woodstock, Ohio. **NETTIE H. CRANSTON**, age 11.

CATCHING SWARMS IN HIVES TIED TO A TREE.

My papa has 10 stands of bees, and loves to work with them. I will tell you how he caught three good swarms. He took the stands that other bees had died in, and which had old comb in, and tied them up in trees, and the bees went into them. Papa lost one good stand of bees which had 17 lbs. of honey. He thinks they froze to death. New Orleans sugar is very good to feed them in winter.

Smithville, Mo. **ESTELLA JENKINS.**

Thank you, little friend, for the item that you give. If you could get the bees to go into the hives thus prepared, and the hives could be raised or lowered easily, it would be a capital plan for catching swarms; but I should be afraid that the bees would not always go where we wanted them. **ERNEST.**

A JOB AT FEEDING SECTIONS; HOW TO PACK HIVES FOR WINTER.

Pa has a lot of bees which were flying about two weeks ago, all living and doing well. Pa has about completed a new building, and machinery for making hives and one-piece sections. When school is out, my pa offered me a job to feed the section-sander with buckeye sections. I like to see them come through on the other side. They look beautiful and white. Pa has promised to let me pull the rope for the first time on the big engine-whistle that is now in the new building. In the fall, coming on winter, we took fence boards and stakes. We drove the stakes along in a row close to the hives, and set the hives close together. Then we took clover straw and put it in between the hives behind, and boarded the whole around the outside.

Ada, O., Feb. 22, 1886. **RAY MURRAY.**

BEE-KEEPING IN FAR-AWAY IRELAND, AS REPORTED BY A JUVENILE.

Father has given me leave to write you about his bees. He was in America for some time, and came home twelve months ago, and commenced bee-keeping about April, by buying eleven straw hives of bees, and he drove them out and put them and combs into wooden hives, what he calls eight-frame Langstroth hives. He has twenty of them now. There is nothing but straw hives about here, and all black bees. Father has had several Italians from America, but the most of them were dead. He has six living; they were about 14 days coming. He got three on November 30, but two of them were dead.

There was a great buzzing in swarming time. Father clips the queen's wings, and when a swarm goes off he catches the queen and puts her into a cage and moves the old hive away and puts the new one in its place, into which the swarm goes when they miss the queen. He then lets the queen in with them, and puts the hive in its place, and the old one back. It is very nice to see them rushing into the hive.

Last season was good for honey, but father did not get much. He says he was too late in starting.

We have hardly any winter here at any time. Primroses, wall-flowers, etc., are out in bloom now, and every thing is looking very green; but we have a great deal of rain at all seasons, which father thinks will be a great drawback to successful bee-keeping in this country; but he is going to keep nothing but Italians, as he thinks they are the best. They are a very pretty bee, and I like them, for they seem quiet, and do not sting so much as the black ones. Father gave me a swarm which he took out of a chimney where it had been for some time. My sister has a hive too. The swarm came from somewhere, and settled on a bush close to the other bees, and father put it into a hive and gave it to her and we are very much pleased with them.

CHARLOTTE R. TURNER, age 10.

Revlin House, Donegal, Ireland, Jan. 6, 1886.

FROM 25 TO 51, AND 2900 LBS. OF HONEY; REPORTED BY A JUVENILE.

My father wintered 25 colonies during the winter of 1885, and they increased to 51. He took off 2900 lbs. of comb honey, and last fall he doubled them back to 45. He has seven of them out of doors, and the rest in the cellar. Father makes his own hives and sections. He uses the Langstroth Simplicity hive. He is going to make about 5000 sections this winter. He is going to give me ten cents a hundred for all I nail together. Father takes GLEANINGS, and thinks it is a good paper. I claim the Juvenile Department, and I like to read the letters. I have one colony of bees. They made me 100 boxes of honey. I like to help father among the bees, but I don't like to have the bees sting me. I got stung six times at one time last summer. Father went up to Skowhegan this year to the bee-convention, and he saw Mr. J. B. Mason and sons of Mechanic Falls, Me. I can't think of any more this time.

George F. Greely, age 13.

Clinton, Maine, Jan. 31, 1886.

Thank you, friend George, for your very full report. I judge that you take considerable interest in your father's work. When fathers can get good substantial help from their boys, they can expect to attain some degree of success, as did your father. You say you "can't think of any more." It is not long letters so much we want, but it is a good deal in a little space, and I think you have succeeded pretty well. We should like to have you report in regard to your father's bees next season. Ernest.

STRONG SWARMS READY FOR THE FIRST FLOW OF HONEY.

Mrs. L. Harrison sent me a colony of pure Italians. They were weak when they came, and we built them up with other brood; when they got strong we made an artificial swarm, and then they built up very strong with plenty of stores, but no surplus. Those that had strong swarms early for the first flow of white clover were all that got any surplus in this section of country. Auntie L. sent me an A B C book, about the same time she sent the bees. Willie Simonton.

Memphis, Mo.

CARP, SWEET-POTATO VINES BLOOMING, ETC.

Pa has between 65 and 70 carp minnows, and they eat a piece of bread as large as my hand, every night. They eat more at night than in the daytime.

Grandma's sweet potatoes bloomed last summer. The reason I speak of them, is because I have seen inquiries in the papers as to whether the sweet potato vine blooms. Ma says that there would be as many as twelve blooms on a vine not more than two feet long. She says that she has heard of but one other instance where they bloomed so profusely, and that was at a neighbor's a few years ago.

I received Ten Nights in a Bar-Room, and read it with great interest, as did all the family, and I loaned it to a neighbor, and she loaned it to another neighbor; and as most of the neighborhood favor dram-drinking, I hope it may do some good while away from home.

What would it cost to send a few beechnuts in the burr, for seeds? I have never seen any, as they do not grow here; but I have heard pa and ma speak of them, and I should like to see some.

Amy I. Holleman, age 11.

Wager, Benton Co., Ark., Feb. 14, 1886.

We did not succeed in getting any carp minnows last year from our carp-pond. As about a dozen large mud-turtles had succeeded in getting into the pond, we rather thought they had eaten all the spawn, or fish-eggs. We had been in the habit of feeding the carp crackers toward evening, and by and by the mud-turtles learned the trick of grabbing the crackers too. A casual observer would hardly notice this sly movement of the turtles, but a little close watching shows how nicely they can gobble up the fragments that are thrown out. I determined that I would shoot every one of them if possible, and accordingly on the 4th of July last, with rifle in hand, as soon as one stuck his nose out of the muddy water, I let fly a bullet, knocking said nose, head, and neck, into—well, you know what, boys. In this way I disposed of over a dozen, and, so far as I know, we have not been troubled since. If any one is annoyed by these in his pond, I know of no better way to get rid of them.

In regard to the beechnuts, Amy, you can get some relative, where they grow, to send you some. The postage will be one cent an ounce, and for 10 cents postage you can probably get all you need. Ernest.

GOING OUT OF THE BUSINESS—HONEY TOO CHEAP.

Noticing that you wanted the juveniles to send in reports about how long a bee would live without a sting, I thought I would send mine. A few days ago when the bees were having a fly, ma was in the bee-yard about ten minutes. When she came in there was a bee on her back that had just lost his sting. I took care of him, and, counting the ten minutes ma was in the bee-yard, he lived just three hours. Pa has 32 swarms of bees. He has lost one nucleus this winter. The rest are doing well. Last spring ma was in Blasted Hopes, but pa said we would try again. Last summer the bees did very well. Pa says he is going out of the business, because honey is too cheap to eat. Cora Snyder.

Corey, Mich.

Friend Cora, we are sorry to hear that your papa is going out of the business because "honey is too cheap." Ought we not to rejoice that there are hundreds who can now enjoy one of God's choicest sweets, where they could not before when honey was 25 and 30 cts. a pound? Perhaps the false statements that you have been reading about may have had something to do with making "honey cheap;" but we have good reason to think that people will soon learn the true source of honey. Again, there are thousands of people who hardly know what honey is. Let us stir ourselves, and help papa to sell the honey around home instead of sending the whole lot to the city, where honey is hardly wanted at any price. Don't you see that the more honey we send into the city, where the sale is slow, the lower the price will be there? Let us see how many uses we can make of honey; and when the city folks are willing to pay a fair price, we will send it to them. At the head of this department you will see what I say about honey as a medicine for coughs and croup. Now, perhaps the very cheapness of honey will so introduce it to the people that they will conclude they must have it, and the price will then rise accordingly. No, friend Cora, don't let your father give up the business yet. Ernest.

HOW MANY BUMBLE-BEES ARE THERE IN THE AVERAGE SWARM?

My pa bought some bees in a soap-box, and Gleanings told him how to transfer them; but he forgot that he was ticklish about the knees. The bees found that out, and, well, pa will now wear garters outside his pants near his shoes. I like to frolic with the bumble-bees. I read the piece about jugging the rogues. I used to pour hot water in their ground-nests. Last summer I found a nest in the front yard, and, in the cause of science, to find out the number of bees in a nest I borrowed ma's round wire fly-trap with a tin top. I made the hole in the cone a little larger, and set it over the hole in the ground just at dark. Next day I caught 160 bumble-bees. The next nest I caught 171. The next nest I caught 47, but they were whoppers, with yellow mufflers on.

We have a judge in our town whom we call the bumble-bee judge, because he for a little money tried to defend a black man found killing turtle-doves, and the judge wanted the witness to say that the man was just chasing bumble-bees. The black man is now in State prison for another crime, and the judge goes to Utah, Warren Co., Ill., sometimes, to draw a big salary. **Hadley Renshaw**, age 12.

Terre Haute, Ind.

Thank you, friend Hadley, for the facts you bring out in regard to the bumble-bees. I used to rob their nests sometimes, but I had no idea there were so many. Did you find very much honey in the largest nest? Aside from the fun, I never thought the amount of honey paid me for the trouble. Altogether, I do not know but that it is rather cruel to rob their nests, if fun is the only object; of course, they may build their nests where it is desirable to get them out. —Your fly-trap is similar in principle, if I mistake not, to the Alley drone-trap; and it is possible that our friend may have got his idea of the wire cone from this fly-trap. **Ernest.**

FIVE CENTS FOR REPORTING EVERY SWARM THAT COMES OUT.

A year ago this winter papa lost almost all of his bees. When spring came he had but 37 colonies left out of 79. From these we got only 1300 lbs. of honey —600 lbs. comb honey, 700 lbs. of extracted honey. He has kept some bees down cellar this winter, and some days it was so cold he had to have a fire down there. When papa had to work in the field he told me if I would watch the bees he would give me five cents for every swarm I saw coming out; so when I saw them coming I would run and call him, and he would come and hive them. I go to school every day. I have language lessons, and in that way I have learned to write letters. Last month my average on examination was 94¼, the highest of any in school. **Mabel Emmons**, age 8.

Tampico, Ill.

I heartily indorse your father's plan of giving you five cents for every swarm you saw coming out. Even when I was quite small, "my pa" generally rewarded me in some such way for little services that I was able to render. As mice sometimes made destructive work with combs stored away for the winter, I was allowed five cents for every mouse I caught. Each additional five cents gave me a new impetus for ridding the barn of the "pesky varmints." As we lived in town, it was my allotted task to pile wood and hoe the garden—two things that I detested above every thing else. One day father said to me, "If you will hoe that garden so that I can not find a teacupful of weeds, I will give you a croquet set." All at once I took keen pleasure in "seeing things grow." I was up in the morning, and at work again at it after school; and when by the sweat of my brow I had a clean and handsome garden, with what pleasure I showed father and mother what I had done. The result was that we had an abundance of vegetables of all kinds. Why, I believe I enjoyed that garden more than the croquet set which I obtained afterward. It pays every time to reward children with some small gift; and it need not necessarily be a croquet set either. Piling wood, hoeing in the garden, helping papa to extract, will thus become keen enjoyment; where before it was any thing but pleasure. **Ernest.**

"HUBER AND HIS PA" AS THEY APPEAR EVERY DAY AT HOME AND IN THE FACTORY.

Yesterday, in Gleanings, I saw in the picture of your greenhouse, a man and a boy. Are they Huber and his pa? I should like to know. Pa takes Gleanings, and we like it very much. Ma thinks it is interesting to read in Our Homes.

Sylvester Z. Paulus.

Stone Creek, Tus. Co., O., Feb. 23, 1886.

Yes, friend Sylvester, "Huber and his pa" stand near the greenhouse in the picture. If you turn to the editorial column of the same issue you will see that the picture is there explained. Of father, if the engraving is held at arm's length, it is a very correct likeness as he appears every day in the factory and on the grounds. He is somewhat bald-headed, you know, so he has to wear a heavy fur cap in winter, such as you see on his head. Occasionally something comes up that "needs to be seen to right away." Often it takes me a good while to find him, and sometimes after a search in vain through the various departments of our factory, as a last resort, I take a look from one of the upstair windows, and away to the other end of the honey-farm, very likely, I catch a glimpse of that identical hat and its possessor, possibly emerging from a piece of sweet corn, or from a ditch where an underdrain is being put through. After he has been reading letters he gets tired (for he has not the endurance that he once had), and for recreation he busies himself in the garden where, perhaps you are aware, he finds keen enjoyment. Well, during week days he doesn't change his general appearance as seen in the picture very much, except once in a good while he gets "awful" muddy; and as he resumes his letters, you would hardly take him to be the boss of over one hundred hands. Huber's mamma sometimes has to give him a good talking-to for being so careless; but when he has been digging in a muddy ditch, and thereafter returns to the letters, it is not easy to maintain the same appearance always. You know how it goes, boys, from the playground to the schoolroom.

As to Huber, I do not think the picture represents him very well. It is a difficult matter for the engraver to correctly represent a child's features. Huber is quite fond of following his pa out on these excursions on the farm. Lately he has taken a great liking to watch the men work at their various machines—at one time in the wood-working department, at another in the machine room. Once we caught him walking under the belt of the great fly-wheel of the engine. We have told him he musn't go there any more, for it would "make the b'ood come" if he did. This is the only way we can explain the terrible consequences. He has been very careful lately. **Ernest.**

TOBACCO COLUMN.

I UNDERSTAND you offer any man who will stop using tobacco, a smoker. Well, I will comply with those terms. I make you the regular promise, if I ever commence smoking tobacco again, I will pay for the smoker.

Glenwood, Pa., Oct. 17, 1885. C. D. BENNETT.

You said you would send any one a smoker who would stop using tobacco. I stopped chewing one year ago, and went to smoking. Since last May I have not used it in any shape. If you see fit you can send me a smoker. If I commence using the weed again I will pay you all you ask for your smoker. L. F. COUSINS.

Utica, Pa., Dec. 28, 1885.

I received my watch a few days ago in good order; but last night I hung it up and when I got up this morning I found the crystal broken, from some unknown cause. I suppose the glue must have frozen and caused it to break. If you will send me a new crystal, I will promise to quit using tobacco. CHARLIE HARRISON.

Collinsburg, Bossier Parish, La., Feb. 1, 1886.

I notice that you will give a smoker to all who stop using tobacco; and as I have been using it, I think I can stop for a smoker. I have two colonies of blacks, which I expect to Italianize in the spring. It is agreed, that I pay you for the smoker and the postage, if I ever use a crumb of tobacco again.

Rockingham, Va. W. O. ROUDABUSH.

A NEIGHBOR HAS QUIT.

I have 24 stands of bees, but I think they are poor pay in this county. I never use tobacco. My neighbor, however, has a few bees, and has lately quit the use of tobacco. He asked me to write to you to send him a smoker. His name is H. L. Revely. Since he quit the use of tobacco I think he is a nice man. If he is ever guilty of using it again I will see that you get your pay for the smoker.

Austin, Lonoke Co., Ark. E. M. BARGER.

ONE WHO HAS USED THE WEED 15 YEARS.

I notice from GLEANINGS, a copy of which was loaned me by a friend, that you offer free to any one who will give up the use of tobacco, one of your smokers. I have used tobacco for fifteen years, and at one time was an inveterate smoker; but I have given it up; and if you feel inclined to send me a smoker I shall feel grateful; and should I again take up the use of tobacco I agree to remit you the usual price of a smoker.

Boyce, La., Nov. 22, 1885. W. P. BRADFORD.

MIXING BUSINESS AND RELIGION.

I am very much pleased with the Christian tone of your magazine; and as to mixing religion with business, I say the more the better; and there must be something wrong with the business that is ashamed or afraid of religion.

I might say something in regard to using and selling tobacco—the Lord saved me from using it several years ago, and the clear light revealed that it was as great an evil to sell as to use it. I find it is just as easy to do a *clean* business, as any other, and much more in accord with a clear conscience and Bible truth. There is victory for every slave to the habit, in Jesus' name. J. E. BRISTOL.

Harpersville, N. Y., Jan. 21, 1886.

KIND WORDS FOR GLEANINGS.

I like GLEANINGS better every time I get it. I let my neighbor read it, especially the 15th, or middle numbers, and he, too, thinks it splendid. Well, my neighbor who got a smoker when I did, for quitting the use of tobacco, I am sorry to tell you, has gone to using the weed again; and as soon as I can get up a club of a few names for GLEANINGS I will send the money for the smoker. I still "hold the fort" in regard to tobacco, and hope I always may.

Henton, Ill. F. P. HISH.

I have taken GLEANINGS for the past six months, and I think it is a very valuable journal, especially Our Homes and also the Tobacco Column; in fact, it is a fine work all through, and is doing much good. May you live long to continue it. I have commenced keeping bees, and I enjoy it very much. I commenced last spring with two stands, and have gone into winter quarters with 11. I am making chaff hives for next season. May I ask what is the best permanent packing—chaff or sawdust? I have quit the use of tobacco, after using it for ten years, for good. If you think me worthy of one of your smokers you may send me one. If I ever use tobacco again I will send you $5.00 for it. WM. D. SOPER.

Jackson, Mich., Dec. 1, 1885.

We prefer chaff to sawdust for packing.

KIND WORDS FROM OUR CUSTOMERS.

I have received the A B C of Bee Culture, and it is the best bee-book that I have seen.

Douglas, Putnam Co., O. H. D. FRIEND.

THAT CALIFORNIA HONEY, FINE.

That California honey is fine. That is the first extracted honey that people ever saw in our town, as I have not used an extractor yet myself. Parties who have bought of that honey praise it wonderfully. E. SALISBURY.

Ossian, Ind.

WELL PLEASED WITH THE GOODS.

I received the goods yesterday. They came through in good condition. I am well pleased with them. I think the smokers can not be excelled. Please accept many thanks for sending the order so promptly. I have found that, in sending for small orders, there is very little difference in either express or freight to this place, except in time.

St. Joseph, Mo., Feb. 27, 1885. JOSEPH F. AERY.

OUR JOB WORK GIVES GOOD SATISFACTION.

The package of circulars and envelopes came to hand yesterday, and they are a very fine job. We are highly pleased, both with the work and the very reasonable price charged, and we feel sure they will greatly help our trade. The cut which you had made for us is a beauty, and shows the working of the machine to perfection. G. W. STANLEY.

Wyoming, N. Y., Jan. 8, 1886.

A PREMIUM FOR THE SECOND LARGEST CLUB FOR GLEANINGS FOR 1886.

Friend Root:—I will second Mr. P. L. Viallon's offer as per last issue of GLEANINGS, by offering to the bee-keeper who gets the second largest number of subscribers for your journal, between now and the 15th of June, one of my two-frame white-banded albino nuclei, with untested queen, to be delivered June 15, 1886. I will also *give* one of these nuclei and queens to the bee-keeper who sends me the *first* order for a nucleus after this date, and accompanied with cash ($3.00), both to be delivered June 15, 1886. CHAS. H. SMITH.

Pittsfield, Berkshire Co., Mass., March 4, 1886.

[Many thanks, friend S.; but your last offer, it seems to me, might not fall to the one who made the first order, but the one who lived nearest to you; for parties a good way off might not have a chance to have their orders reach you as soon as those near by.]

OUR HOMES.

So is he that layeth up treasure for himself, and is not rich toward God.—LUKE 12:21.

IT was Sunday evening, March 7, as I sat down to my secretary, where I read my agricultural papers during week days; but I didn't look at the agricultural papers at all, even though a great heap lay there awaiting my review; for I have always noticed that I don't feel as light-hearted, and free from any twinges of conscience, when I read such things on the Sabbath-day as I do when I read the *Sunday-School Times* or the Bible. I noticed that the lesson for the following week was from the book of Esther, and so I took my wife's little Bible and read the book of Esther clear through. By that time I remarked to her that I believed I would go to bed, as I was getting so sleepy. The print of her Bible is rather fine; but for all that, I have never used spectacles, even though I am 46 years old. May be the fine print made me drowsy before my usual bedtime. Perhaps it was in a sort of drowsy way that I asked God's blessing as we knelt together. I did the best I could, any way, under the circumstances, and I think that God knows that I am ready to work for him with my whole heart, whenever he calls. I do not remember any thing more until my wife startled me from a sound sleep by asking what that light was out of the window.

"Why Amos, there is a great fire! and as true as you live, it is our warehouse!"

I remember she said something about the poor horses and our Jersey cow; and as I sprang from the bed, wide awake in an instant, I meditated running to the scene of the disaster without dressing at all; but in a small part of a second I decided it would be better to clothe myself so I could stand the weather, even if some time were lost. I had many times planned what I should do if the factory should be discovered to be on fire; but I had never thought of a fire starting in the warehouse, for no fire is ever kept there, and no lantern, even, had been there for weeks. It is out in the lot, as it were, alone, except for piles of dry pine and basswood between it and the factory. As I emerged from the house, a horse turned and faced me and snorted. It was "Meg." "Thank God," I thought, "Meg has escaped, any way."

About this time I began to hear the hoarse call of "Fire!" from neighbor to neighbor, and the first thing to be done was to give notice to the fire company. I mentally decided that this was of more importance than going near the burning building, to try to save any property. Too much depended on every moment of time to trust to anybody, and I started on the run for the engine-house; but just as I had passed the factory, Neighbor H. shot past me on one of his horses, yelling worse than a Comanche Indian. I didn't know before that any horse could go so fast, nor that any human lungs could utter such unearthly shrieks; but I mentally thanked God for the horse, for Neighbor H., and for his powerful lungs as well.

Now I want to stop a moment to tell you that Neighbor H. had a brand-new self-binder stored in a shed adjoining the warehouse, and this binder was not insured. Had he shot right down to the warehouse, with the assistance of neighbors there he could, very likely, have pulled his machine out. He thought of it on his way to the engine-house, but decided that the reaper would have to slide for the sake of saving the few minutes' time in getting the engine down to save my property. By the way, boys, doesn't that come pretty near loving your neighbor as yourself?

The boys who sleep in the factory were now awake, and yelling, after the example set them by "Uncle Hen," as Huber and the rest of the children call Neighbor H. I told one of them to stay about the factory, and then we went to see what could be done with the warehouse. You will hardly believe it, but by the time I got down there, it was pretty nearly a burnt building. Not only the million sections that we had been making ahead to fill your orders were helping to make the great conflagration, but there were all my tools and agricultural implements, and ever so many other things that represented the hard work of years past. Worse than all, a south wind drove the fire fiercely into the lumber piles, and it seemed for a time as if nothing could prevent it from sweeping clear to the factory, and licking that up too. How I ached and prayed to hear the roar of the fire-engine, indicating that a stream of water had started to the rescue! Finally it commenced coming, and hundreds of willing hands lifted the great hose toward the lumber piles. All at once the water stopped. In their zeal they had pulled the hose in two before it was fairly coupled together. A messenger must be sent back to the engine to stop the flow of water, while the hose was mended. Finally it began pouring a great muddy stream on the burning piles; but, to my great dismay, the fire seemed to burn just about as well with water on as it did without. The water was forced through the openings between the boards; but as soon as it stopped, even for an instant, out poured the flames again. The flames were within a few feet of our second warehouse containing our seasoned lumber and Simplicity hives; but it seemed as though even the fire-engine was powerless to stay it. But by this time men and women had formed lines, standing in the mud meanwhile, and pails were passed from one to the other, while this second warehouse was kept drenched on the roof, and along the sides and ends, by means of little fountain pumps. For hours they fought, making apparently but little headway; but the wind finally veered around a little, and a snowstorm set in, and—we, by God's providence, conquered.

Of late, my health has threatened many times to break down, and I began feeling that, if I would be of any use on the morrow, I must get some sleep. Many friends told me that this was the wise thing to do, after I was sure the fire was within bounds. I obeyed, and laid my head on the pillow. Now, it has always been said of me that one reason why I could stand so much mental strain was that I could go to sleep at any time, day or night. Was I equal to the task now? I began to feel that I was not, until I questioned myself in regard to God's promises. Whose property was it that was burning up? I held the title to it, and it was all paid for. Was it mine, or the Master's? I had often told him, on bended knee, to take me, and all that I am and all that I have, into his care and keeping. Here was a chance to practice what I had preached. "Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you," came into my mind; and again, "The Lord gave and the Lord hath taken away; blessed be the name of the Lord." If it was through any fault of mine that the building was burning, I might lie awake and worry, or get up and right the fault. If, however, it was something I had nothing to do with, why should I be troubled? If the property was all in God's hands, and he had seen fit to permit it to be taken away in this manner, why should I worry or lie awake when rest was so much needed? "Behold the lilies of the field; they toil not, neither do they spin, yet your heavenly Father feedeth them." And, again; in our opening text the man whom Jesus told about had great property, and was obliged to build even greater barns; but he expected to get all his happiness and contentment and peace from the contents of those barns. If my hopes were planted on the contents of the warehouse, and sections by the million, then might I lie awake; but if they were rooted and grounded on the rock Christ Jesus, why should I not sleep as well as in any other time, when duty and friends seemed to point out that I should husband my powers to help others, by taking rest? The above reasoning took me, perhaps, five minutes, and I went to sleep as if nothing had happened. When the fire-engine stopped for a few minutes, however, I sprung up instantly. My wife asked what the matter was. I told her they had stopped throwing water. Can you imagine how sweet the sound came as the booming commenced once more? I afterward learned they stopped long enough to disconnect the hose and put it *under* the railroad track instead of *over*, so it should not be cut by an approaching train. One other stoppage happened, but I awoke as promptly, and commenced dressing until they got started again. Even while sleeping soundly I kept in mind that, if our city water-works should give out, the fire would be again upon us.

When daylight came, the flames still burned high, but they were held captive. Sure enough, the firemen had exhausted the water from the reservoirs, and they were obliged to wait until afternoon so that more could be pumped, and then, and not until then, was the fire put clear out.

Perhaps I might say, briefly, that our loss amounts to some ten or twelve thousand dollars. Insurance covers of the above a little less than five thousand dollars. As we have a great abundance of seasoned basswood and pine that the fire did not touch; better machinery than we ever had before, and I trust, too, a better-disciplined force of willing hands, we shall not be much if any behind on orders. The day after the fire, I gave the hands a talk at the noon service, reading from the book of Nehemiah about how they built up the walls when the gates were burned down by the enemy; and it seemed to take a happy hold of our little band of workers, so that we to-day, March 16, have quite a little pile of sections ahead, awaiting orders; and by working from daylight till dark, we think we can supply the wants of our customers, as if nothing of the kind had occurred.

Now, then, how did the building get on fire? Nobody knows. But in telling what we *do* know, it brings to me sadder thoughts, —a hundred times sadder, than does the thought of the loss of property or the loss of the lives of our domestic animals. When my wife inquired about our old trusty family horse, who has, for toward twenty years, been the faithful servant of the family, from the time when he used to bring my wife to church, from her home down by the river, until he took each new baby out for its first ride, allowing it to hold the lines, and drive, or to pick grass for him when he was older, sit astride his back, until he was, as it were, one of the family—when she inquired after the welfare of this faithful old friend, Uncle Hen showed her a blackened horseshoe. It was all he could bring her as a remembrance of the horse that had been her special property for so many years. The first neighbor who came on the ground when the building was burning, saw the doors of the warehouse open, and the two horses loose in the field. Poor old Jack! in his fright he ran back into the fire, and turned up to his old accustomed stall. Finding it full of smoke, with a snort he started for the other end of the warehouse. Being unable to get out there, he wheeled back and fell down inside, just before the door where he went in. Both horses had very strong leather halters on their heads, and the rings to the halters were found in the ashes by the manger, indicating, without question, as it seems to me, that somebody unbuckled the halters and slipped them off, turning the horses loose after they had removed the bar and opened the doors. It also seems as if the warehouse had been fired in different places. "An enemy hath done this," is the language of every one; but what *enemy* have I who should thus desire to destroy my property? taking the lives of the domestic animals, and endangering the whole of this part of the town? Whoever planned the scheme must have remembered that it was an exceedingly dry time, and that the wind was blowing pretty strongly right in the direction of those dry lumber piles.

Am I to blame for having such enemies? I may be, but it is not certain. It is a sad fact, that throughout our land there is a bitter feeling among some of the laboring classes against those who manage capital. Intemperance is a large factor in this trouble; and even now, while I write, the papers are full of accounts of strikes and trades-unions. How great, how *very* great, is the need of God's love in the hearts of both capitalist and laborer! Sometimes men who have been discharged for unfaithfulness, or for dishonesty, threaten to, and even do, set fire to buildings. Shall one who employs many hands, therefore hesitate about reproving dishonest or unprofitable hands? or, when he discovers that the example of *one*, is corrupting to a large number, shall he keep him, for fear of what he may do? God forbid! Where should we be—what would become of the laws of our land—what would become of our nation, in fact, should we cowardly back down and let evil rule? Shall we lie awake nights, and worry, because of this kind of wickedness? By no means. What did the Master say in regard to this matter?

> Blessed are ye, when men shall hate you, and when they shall separate you from their company, and shall reproach you, and cast out your name as evil, for the Son of man's sake.—LUKE 6:22.

He said, "Blessed are ye;" that is, when the persecution comes for *righteousness'* sake. The Savior lost his life because he reproved wicked men. John the Baptist was beheaded because he told a wicked king and the woman he lived with that it was a sin and a crime to do as they were doing. Two of our presidents have lost their lives because they held fast to that which was right. If this property has been burned because I have been vehement in regard to temperance—because I have been determined that no man or woman whose example is bad should persist in trying to lead these souls away *from* Christ, these whom I have been faithfully trying to lead *to* him, then should I rejoice, rather than to be cast down and sad. There is a strange verse in the sixth chapter of Luke, just after the one I have quoted. It reads this way:

> Rejoice ye in that day, and leap for joy; for, behold, your reward is great in heaven; for in the like manner did their fathers unto the prophets.—LUKE 6:23.

When, for the first time after the fire, no one could find the friend whom I have spoken about in Our Neighbors for this month, suspicion was turned upon him, and we concluded, when that part of the journal was printed, that he did it while crazed with drink. I am glad to say, however, that, some days after, we had ample evidence that he left our town on foot, and started for Cleveland Sunday *morning*. It was hard for me to believe that humanity could furnish a single specimen of such ingratitude, and I believe now that he is my friend, and would not harm me nor my property. As I mentally go over the list of those with whom I have had trouble, and weigh each one with the best judgment God has given me, I can not think of one whom I can believe it possible could commit this awful crime because of personal differences—because I had refused to give such a one work, or because I had inadvertently, directly or indirectly, injured him or his business; and yet the sad fact still stands—somebody deliberately took down the stout bar across the doorway, swung the doors open, unbuckled the head-straps to the halters, turned the horses loose, and then set fire to the hay, straw, and combustible goods stored near it, even while he felt the stiff southern breeze blowing strongly toward the long rows of seasoned lumber piles, on each side of the railway track, from the warehouse to the factory. Sin is in the world. We can not hide nor disguise the fact, that, so long as we stay here, we have got to cope with the powers of darkness; we have got to cope with human hearts where Satan has taken such full possession that not a spark of mercy or solicitude for any is left. It is a hard fact, dear friends; but, be ye not cast down nor discouraged. The Master has said, "In the world ye shall have tribulation; but be of good cheer; I have overcome the world." If, by kindness and good will, you can win men from their evil ways, rejoice and thank God; but if it all results apparently to no purpose, and if you succeed only in being hated because you are upright, there is a promise yet—"Rejoice ye in that day, and leap for joy, because of your reward in heaven."

Now a word in closing, in regard to the loss of property. If you are working for property because you expect to get happiness from it, you will have trouble and disappointment all the days of your life; and the more property you have, the more disappointment you will get. I speak from experience. If, however, property is held only in trust, and is recognized as belonging to the Master, and is used for the good of the people, and for his sake, then shall it give joy and pleasure. And now believe me when I tell you that it makes very little difference whether you have much or little, if it is held in the right way. If thousands are swept away in an hour, through no fault of your own, go on doing business carefully and economically, as if nothing had happened; save the pennies where you can save them, but let thousands slide without a murmur where you can *not* save them. Get yourself fully possessed of the idea that you are simply a faithful steward, and nothing more, and then you are all right. But be sure that the idea does not get in, that, because you *are* a steward, you are to be less earnest and zealous in caring for what God has intrusted to your care. Get selfishness out of the heart; and while you use care and economy—even such care and economy that people call you stingy, let the care and economy be for the sake of helping the people and helping the general business of the world, and not that you may make money and get rich. Labor to enrich others, rather than to enrich yourself. The incident I have given in the fore part of this paper, where Uncle Hen let his self-binder, that was *not* insured, burn up in order to save my property that *was* insured, strikes somewhat on the same point. Unless the fire company stopped the conflagration speedily, not only would I lose far beyond my insurance, but the whole community would suffer a heavy loss.

Now while I am about it, I want to say that this very trait of character, that enables one to forget self and selfish interests, is the surest way in the world to make money. It puts you where God can use you, and where he can use you for great ends. Mueller's life is something in this line. And you will remember that Jesus said, "Whosoever will save his life shall lose it; but whosoever shall lose his life for my sake and the gospel's, shall save it."

Now, please let us be careful that we make no mistake here. Some of the friends have thought us perhaps more vehement in the collection of little debts than the case demanded. If one can spare thousands in a loss by fire, why should he not forgive little debts, when people have been unlucky by sickness or bad calculations, and are unable to meet them? My friends, a true servant of God should try to do business in a way that will be most conducive to the saving of souls, and of most benefit to his fellow-men. Then the question also comes up, Does it make a man better, or does it really *help* him to let him slip out of his just obligations? I do not think it does. I have been over this ground before, through these Home Papers, and I try it over and over again in the experiences of every-day life. I have done people good a great many times, and have even helped them to come to Christ, without question, by giving them employment; but the cases are few and far between where I have conferred a lasting blessing, or have even been the means of giving any real help, by *giving money*, outright, without equivalent. It has seemed to me as if God had said, "No, no, child, don't do it;" and it is about the same where I have let people slip out of paying that which they had honestly and fairly promised to pay. Over and over again I have had reason to think it was to their hurt: therefore it seems to me it is a duty to our fellow-men, with perhaps a few exceptions, to insist that they shall do, according to promise, whatever is in their power. If they are behindhand and unfortunate, by no means crowd or distress them: give time; and if circumstances seem to indicate that it is best, let them pay interest. But to let people repeatedly slip out of meeting their just obligations, is to let them contract a disease that, like theft or intemperance, or an evil temper, sooner or later carries them down to ruin. Now, then, "seek ye first the kingdom of God, and his righteousness" in all that you do: and having done that, be not afraid of all that the powers of darkness can bring to bear. They may take away property; they may even take away life; but God's promises are sure and solid.

And fear not them which kill the body, but are not able to kill the soul; but rather fear him which is able to destroy both soul and body in hell.—MATT 10:29.

CONVENTION NOTICES.

The Southern Illinois Bee-keepers' Association will hold its third annual convention, Thursday, April 8, 1886, at 10 A. M., in Teague & Harris' Hall, Du Quoin, Perry Co., Ills. A general invitation is extended to all. F. H. KENNEDY, Sec.
Du Quoin, Ill.

The semi-annual meeting of the Western Bee-keepers' Association will be held in Kansas City, Mo., Apr. 29, 30, 1886. Those connected with the Association are desirous of making this meeting more interesting than any of its predecessors, and therefore invite all who can to be with us. It is intended to have essays read on the leading thoughts in bee culture, which will be announced as soon as arrangements are made. Let all who have bees, queens, bee-fixtures, etc., bring them if possible. Due notice will be given in regard to a hall.
Independence, Mo. P. BALDWIN, Sec.

The officers and members of the Texas State Bee-keepers' Association send fraternal greeting to the members of all other bee-keepers' associations throughout the State of Texas and all North America, and extend to them, and all interested in apiculture, a most cordial invitation to meet us at the bee-farm of Judge Wm. H. Andrews, McKinney, Collin Co., Texas, on the 5th and 6th of May. Indications for a grand meeting are growing brighter, and every effort will be made to render this the most stupendous meeting of bee-men ever held in the State. Kind treatment to all, and no hotel bills to pay. So, come one come all, as we promise you something new.
B. F. CARROLL, Sec. Texas State B. K. A.
Dresden, Texas, March 5, 1886.

The Bee-keepers of Manitowoc and adjoining counties will hold a convention at Kiel, Manitowoc County, on the 25th day of March, 1886, by the name of the "Lake-Shore Central Bee-keepers' Convention." JESSE H. ROBERTS.
School Hill, Wis., March 1, 1886.

The bee-keepers of Stark Co., met in Grange Hall, Canton, O., Mar. 2, 1886, and effected a temporary organization by electing Jacob Oswald, Pres.; J. H. Smith, of Canton, Vice-Pres., and Mark Thompson, of Canton, Sec'y. and Treas. Much interest was manifested, and we anticipate a strong organization. The bee-keepers of Stark and adjoining counties are earnestly requested to meet at Grange Hall (over Farmers' Bank), Canton, O., Tues., Apr. 13, 1886, for the purpose of effecting a permanent organization.
Canton, Ohio. MARK THOMPSON, Sec'y and Treas.

The next meeting of the Patsulgee Bee-keepers' Association will be held at Arcadia, Ala., March 20, 1886.
Raip Branch, Ala. M. G. RUSHTON, Sec.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 15, 1886.

The Lord shall preserve thee from all evil.—PSALM 121:7.

DISCOUNTS.

NO discounts for ordering early in the season, after April 1. Until April 1, an extra 2 per cent.

BLUEBERRY-PLANTS.

WILL those who purchased the blueberry-plants from the advertisements which appeared in GLEANINGS a year ago, please report how they succeeded?

CROWDED OUT.

SEVERAL valuable articles from some of our regular contributors are this month crowded out. This is largely owing, perhaps, to the extra number of advertisements; and to meet the demand we shall put in eight extra pages in our issue for April 1.

NO DELAY IN FILLING ORDERS.

AT this date, March 17, we have caught up on every thing that was burned in our warehouse, in the way of supplies of our own manufacture; and all other goods that are burned are either here or are expected daily, so there will probably be no delay in filling any orders the friends may have had in mind to send us. One hundred thousand sections are now ahead of orders, and we expect to fill every order promptly (with a few rare exceptions), just as we have been doing for the past year and a half.

MAPLE SUGAR FOR FEEDING BEES AND OTHER PURPOSES.

WE have in stock about a ton of maple sugar, one year old, which should be worth, say, 8, 9, and 10 cts. per lb. (according to grade), if new, but in consideration of being one year old, we will sell it for 7, 8, and 9 cts. As it has been nicely kept over, it is just about equal to the new for any purpose; and the cheaper grade is as handy for bees that need stores, or stimulating, as any thing we can have. In fact, we have never had better success with any sort of feed than we have had with cakes of maple sugar placed right over the cluster. A strong colony will take care of a tin-pan cake.

LAWN-MOWERS CHEAPER.

THE little lawn-mower that pleased so much last season will now be $5.50, instead of $6.00. This cuts 10 inches wide, but we can now furnish one of the same kind, cutting 12 inches wide, for $6.00. The 10-inch one runs a little easier, of course, and it may therefore be preferable for a lady or for a child.

POULTRY-NETTING, JOB LOT.

WE have just secured some job-lot pieces of poultry-netting, which we can sell at the regular price of one cent per square foot, and you need buy only a small quantity, if that is all you want. A printed slip, giving the widths and the number of square feet in each piece, will be mailed on application. The different widths are as follows: 12, 18, 24, 30, 36, 42, 48, 60, and 72 inches. Any one who takes two or more pieces can have a discount of 5 per cent; 10 or more, 10 per cent.

MAPLE SYRUP.

A FINE article of maple syrup, such as is now made by the latest improved evaporators, is, in my opinion, one of the most delicious sweets of any thing that God has ever given his children; yes, better then any honey ever gathered, to *my* notion. We have just purchased the entire production of one of our neighbors, who has been one of the most successful and progressive maple-sugar makers. This syrup weighs 11½ lbs. to the gallon, and it is put up hot, just as it comes from the evaporator. We are now using some for our table, that is one year old, and it has apparently all the fine aroma and freshness that it had when first put up. Price $1.00 per gallon where cans can be returned, after the syrup is used out. Where we ship it so far that the cans can not be returned, the price will be $1.10, can and all. In lots of 10 cans, an even dollar each; 100 cans, $95.00. Maple syrup of former years, made in the old way, in cans holding 3½ quarts, 75 cts. each.

PEAVINE, OR MAMMOTH RED CLOVER.

MANY are inquiring as to the results obtained from this large red clover for bee-pasturage, as well as for other purposes. I believe the reports indicate that it unquestionably yields, some seasons, very large quantities of beautiful clover honey. As the honey-tubes are, however, deep, and difficult of access, bees seem to prefer to work on other sources when they can; at least, it does not seem to attract the bees every season so invariably as does alsike and white clover. As for hay and feed, it yields, unquestionably, the largest amount of any clover known; but the quality is coarse, and is not generally considered quite equal to the hay from alsike or common red clover. For turning under, however, it yields more tops and more root than any other clover known, and on this account it plays a very important part in farming operations. Our agricultural papers, almost with one assent, declare that turning under heavy crops of clover is one of the surest and cheapest ways of bringing up the fertility of the soil, or of getting manure.

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS-CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4-3db

ROSE COMB WHITE LEGHORN EGGS.
6d 15 for $1.00; 30 for $1.60; 45 for $2.00.
C. G. FENN, Washington, Conn.

SYRIAN AND ITALIAN QUEENS,

Before June 15, tested, $2.50 each; after, $2.00 each. Untested, before June 15, $1.00 each; after, single queen, $1.00; six for $5.00; twelve for $9.00.
ISRAEL GOOD, Sparta, Tenn.

Italian Queens sent by Mail.

Untested queens from imported mother, April, $1.25; May, June, and July, $1.00. After April, per half-dozen, $5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

Pure ITALIAN BEES and QUEENS

FOR SALE.

QUEENS BRED FROM IMPORTED STOCK.

Untested queen, just commencing to lay, - $1.00
Furnished by the 10th of May.
Tested, $2.00. Select tested, $2.50. Furnished by the 16th of May.
One-half pound bees, 90c. Furnished after the 1st of April. Cage included.
Two-frame nucleus, consisting of ½ lb. of bees, 90c, two frames partly filled with brood, 90c, and one nucleus hive, 40c. Total $2.20; guaranteed.

All bees, queens, and nuclei are to be safely delivered at your nearest express or postoffice, you paying all express charges. Order early. First ordered, first served. **C. F. UHL,**
6d Millersburg, Holmes Co., O.

C. W. Phelps & Co's Foundation Factory.
SEE ADVERTISEMEMENT IN ANOTHER COLUMN.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Black and hybrid queens for sale, from 15th of May during the season. Black queens until June 20th, 50c; hybrid, 75c.
J. A. BUCKLEW, Clarks, Ohio.

FOR SALE.—7 or 8 good Italian queens from a pure mother. They are mated with black drones; 50 cts. each. Address J. T. HIGHTOWER,
6 Walnut Hill, Arkansas.

HEADQUARTERS IN THE SOUTH-EAST

FOR THE MANUFACTURE OF

Bee-Hives, Sections, Section-Cases,

FOUNDATION, AND OTHER APIARIAN SUPPLIES,

☞ At greatly reduced prices. Send for our new Circular with description of the

"SUCCESS HIVE,"

Which is fast gaining the favor of many bee-keepers.

ALBINO QUEENS & BEES FOR 1886.

It should be remembered that we are also headquarters for the **"Albino Queens."** We also breed **Select Italians.**

Address **S. VALENTINE & SON,**
Hagerstown, Wash. Co., Md.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

FOR SALE!

SIX HORSE-POWER PORTABLE UPRIGHT ENGINE AND BOILER.

Boiler has 52 2-inch flues; is a splendid steamer, oscillating cylinder, 26-inch band-wheel, all complete with injector, Picking governor, glass water-gauges, and all complete with whistle, feed-pipes, 20-ft. smoke-stack, etc. This engine is no cheap concern. It was built in Chicago, and has been used but a little; reason for selling, I need more power in my wind-mill business. This is a nice rig for bee-hive work. For particulars, address 67d

D. G. WEBSTER, Blaine, Boone Co., Ill.

SURE TO SEND

FOR MY NEW

PRICE LIST FOR 1886,

Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 6d

A. B. HOWE, Council Bluffs, Ia.

SUPPLIES!

HIVES, SECTIONS, CASES, CRATES, ETC. COMB FOUNDATION, ITALIAN BEES AND QUEENS, BRED FOR HONEY-GATHERING.

Wax wanted. Send for free Catalogue to
6tfd REYNOLDS BROS., WILLIAMSBURG, WAYNE CO., IND.

WHOLESALE AND —RETAIL.— **FOUNDATION.**

Warranted good as any made at the following prices:

All-in-one-piece V-groove Sections, $4.00 per 1000; for larger lots write for prices. Wax worked very cheap. Send for price list of other Supplies.
6d Near Detroit.

1 to 25 lbs. per lb. 42c.
25 " 50 " " " 40c.
50 " 100 " " " 39c.
100 " 500 " " " 38c.
Thin, 6 cts. per lb. extra.

M. H. HUNT,
BELL BRANCH, WAYNE CO., MICH.

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30 COLONIES OF

ITALIAN AND HYBRID BEES

FOR SALE CHEAP.

Bees are in 1½-story L. and Simplicity hives; also empty Hives and Combs, Extractors, Section-racks, Wide frames, 1500 4¼x4¼ Sections, etc. Write for particulars to **J. A. BUCKLEW,**
6tfdb **Clarks, Coshocton Co., Ohio.**

$350. ATTENTION. $350.

APIARY FOR SALE.

50 swarms of splendid bees in 2-story Langstroth hives, *comb-honey outfit complete*, in location where bees never freeze or starve. Will pay for themselves the first year. Combs all built on fdn., and wired. A splendid chance for a live man to gain a livelihood in sunny California. Reason for selling, *must have money*. Address 678d

DAVIS BROS., Box 166., Selma, Cal.

Reference, Judge Fowler, Selma, Cal. This is an irrigated district, and a complete failure is unknown. This climate is splendid for those suffering with lung complaints. Inclose stamp. Also a small farm for sale.

J. P. CONNELL,

HILLSBORO, HILL CO., TEX.,

Makes a specialty of rearing pure Italian queens, and of shipping bees in two, three, and four frame nuclei. Tested queens in March and April, $2.50; after, $2.00. Untested queens in April, $1.25; after $1.00. Satisfaction guaranteed. 67911d

SEND FOR CIRCULAR.

BEES BY THE POUND. READY NOW.

Price $1.25 per ½ pound. Address
678d **N. R. FITZ HUGH, JR., Picolata, Fla.**

VIRGINIA LAND AGENCY.

Cheap Farms. Splendid climate. Short Mild Winters. Good Markets. Descriptive Land List Free.
6-11d **GRIFFIN & JERVIS, PETERSBURGH, VA.**

BEES IN IOWA. —SEE FOSTER'S— **ADVERTISEMENT.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

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BEE-KEEPERS' SUPPLIES.

Having Just Completed our Large Factory we are Prepared to Offer all Kinds of Bee-Keepers' Supplies at

BED-ROCK PRICES.

—WE MANUFACTURE—

5 STYLES OF HIVES,
6 STYLES OF HONEY-EXTRACTORS,
7 STYLES FOUNDATION, ETC.

2 STYLES OF SMOKERS,
2 STYLES OF WAX-EXTRACTORS,
"V" GROOVE SECTIONS, ETC.

WE GUARANTEE OUR WORK FIRST CLASS.

Liberal Discounts on Large Orders. Send a Postal Card for Our ILLUSTRATED CATALOGUE.

6d **ASPINWALL & TREADWELL, BARRYTOWN, N. Y.**

FRUIT AND HONEY BEARING
TREES and PLANTS.

For $1.00 I will send by mail, postpaid, any one of the following:

- 100 *Catalpa-speciosa* Trees. As posts, they have stood 50 years, perfectly sound; good bee-tree.
- 100 Box-elder, nice shade-tree, and bees work on them early in the spring.
- 200 Golden-willow cuttings; make a beautiful tree; used for tying, etc.
- 25 Gregg Black-cap Raspberry, best variety.
- 50 Turner, a red raspberry, perfectly hardy, always bears, and equal to white clover for honey.
- 25 Snyder Blackberry, the king of berries. Never winter-kills, never fails to bear.

Send for Catalogue to RANTOUL NURSERY,
4-5-6 d. Rantoul, Ill.

LOOK ✦ HERE.

What you can get for $3.00. A 3-frame nucleus on L. frames, containing two frames of brood, Italian queen, frames covered with bees; 75 Italian queens will be sent to fill first orders. Such nuclei as I send will not only grow into strong colonies, but will doubly pay all expenses with surplus honey. A great many customers have reported over $8.00 from each nucleus. If you want full colonies, or bees in any form *except* by the pound, write me before ordering elsewhere. Orders will be filled from the 25th of May to June 15. 5tfdb

DAN WHITE, New London, Huron Co., O.

FOR SALE.

One second-hand fdn. mill that will roll sheets 14 inches wide. The mill is at present in New Hamburg, Ont., Can. The original price on it was $40.00, but we will now sell it at half price, or $20.00.

Also one exactly like it, owned by W. W. Bliss, of Duarte, Los Angeles Co., Cal. There is nothing wrong with these mills, except that the rolls are of smaller diameter than those we now make, in consequence of which they do not make quite so thin fdn. right in the middle of the rolls as those made now with rolls of a larger diameter. They will, however, roll narrow sheets equal to any, and will roll sheets a foot wide; but when of so great a width, the center is a trifle thicker, as explained above.

Also one 9-inch Dunham mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $20.00. The list price of a new mill of this kind is $40.00.

Also two 10-inch mills of our own make, that were taken from parties who were wanting mills of longer rolls. These have been finished, and we pronounce them in every respect almost as good as new. Price $15.00 each.

Also one 10-inch mill, Olm make, fixed over so as to do about as good work as it ever did. Price $12.00. **A. I. ROOT, Medina, O.**

BeeKeepers
Supplies
Wholesale & Retail.
E.T.Lewis
Toledo
Ohio.

Orders filled the day they are received, except for bees and queens. 4tfdb

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, Germantown, Philadelphia, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db

A. F. STAUFFER & CO., Sterling, Ills.

WANTED.

Names of parties wanting first-class dovetailed honey-sections, to whom samples will be sent on receipt of address. Also crates in season. A perfect iron section-box former sent for $1.00, and satisfaction guaranteed. **Geo. R. Lyon,**
4-9db GREENE, CHENANGO CO., N. Y.

CONTRACTS WANTED
—WITH—
SUPPLY DEALERS
FOR NEXT SEASON'S STOCK OF GOODS.

CHAFF, STORY AND HALF CHAFF, AND SIMPLICITY HIVES, SMOKERS, EXTRACTORS, COMB FOUNDATION, FRAMES, SECTIONS, BOOKS, ETC.,

At wholesale and retail. Unexcelled facilities. Circulars and estimates free. Successors to S. C. & J. P. Watts. Sta. Kerrmore, B. C. C., & S. W. R. R.

WATTS BROS., Murray, Clearfield Co., Pa.
1tfdb.

LOOK HERE

To introduce my strain of pure bright Italians, equal to any in the United States, I will offer tested queens, $1.00 each; extra fine, selected, $1.50 each; one-frame nucleus, consisting of one extra select queen, one frame of brood, ½ lb. bees, for $2.00. If you want any bees, send me your address on postal and I will send you sample by return mail. Beeswax or honey taken in exchange.

22tfdb **THOMAS HORN,**
Box 691, Sherburne, Chen. Co., N.Y.

ITALIAN BEES IN IOWA.

60 c. to $1.00 per lb. Queens, 30 c. to $2.50. Order from new circular, sent free. 6tfdb

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error.

WANTED.—To exchange for bees, or pure-bred poultry, 10,000 Mammoth-Cluster and Turner Raspberry-plants, $1.00 per 100, $6.00 per 1000; also 20,000 Strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale; 75 cts. per 100; $4.00 per 1000.
5-6d W. J. HESSER, Plattsmouth, Neb.

WANTED.—To exchange bees for a Barnes-saw, foundation-mill, or Light Brahma fowls; or I will sell bees by the pound; also queens in season.
JAMES P. STERRITT,
5-6-7-8d Sheakleyville, Mercer Co., Pa.

WANTED.—To exchange Simplicity hives for a circular-saw mandrel for hive-making by steam power. Will sell hives (in the flat) cheap for cash, or will take one-third pay in full colonies of bees. Hives in any quantity to suit customers, up to a carload per day. G. A. FARRAND,
3tfdb Rockport, Cuyahoga Co., O.

WANTED.—To exchange, caligraphs Nos. 1 and 2, telegraph-instruments, white, buff, and spotted rabbits, coal-oil stoves, for bees, supplies, or high-grade poultry. T. E. HANBURY & SON,
Newspaper-Advertising Agents, P. O. Box 98,
6d Atlanta, Ga.

WANTED.—To exchange large, good piano for bees; also pure-bred B. Leghorn and Partridge Cochin eggs, for bees by the pound.
5 6d L. HARRIS, Box 304, Greenville, Ill.

WANTED.—To exchange an Adams horse-power, nearly new, and all complete, just right for hive-making, for fdn., or anything useful to me, or will sell it for $30.00 cash. C. W. COSTELLOW,
6d Waterboro, York Co., Maine.

WANTED.—To exchange or sell. *Eggs for hatching*, from 3 varieties of high-class fowls, selected stock, costing from $12 to $20 per pair. Brown Leghorns, Silver-Spangled Hamburgs, and Plymouth Rocks. Eggs, per setting of 13, $2.00. Safe delivery and a fair hatch guaranteed. (Will exchange for beeswax delivered here at 25c per lb.) Circulars of bees and poultry free. Five settings of Brown Leghorn eggs for $5. Address
6tfdb A. H. DUFF, Creighton, Guern. Co., O.

WANTED.—To exchange one W. Moore & Co.'s double-barreled breach-loading shot-gun (rebounding-bar locks, good as new), and one silver hunting-case watch, nearly new (Columbus Watch Mfg. Co.'s make) for foot-power saw, bee-keepers' supplies, or choice poultry or Italian bees.
6tfdb J. A. BUCKLEW, Clarks, Ohio.

WANTED.—To exchange for cash, bright, clean, pure yellow comb fdn. Heavy, 45c. per lb. Thin, 52c., any quantity. Our own make.
6d MODEL BEE-HIVE CO., W. Philadelphia, Pa.

WANTED.—To exchange a caligraph type-writer, latest attachments, nearly new, perfect order, cost 70 dollars, for bees in hives. A. H. WILCOX,
6d La Grange, Ohio.

WANTED.—To exchange bees or honey for a one or two horse power saw-mandrel, lawn-mower, or corn-sheller. F. W. STEVENS,
6d Moore's Hill, Dearborn Co., Ind.

WANTED.—To exchange eggs from standard pedigreed and registered White and Brown Leghorns of the celebrated Smith and Bonney strains, for bees, queens, and supplies.
6-7d L. J. MCNAUGHTON, Chardon, Geauga Co., O.

WANTED.—To exchange or sell, a few Mammoth Bronze turkeys, young Toms, 20 to 25 lbs.; young hens, 14 to 16 lbs.; first-class stock; also 20 swarms of bees in chaff hives, or exchange for beeswax at 25 cts. per lb. L. GORTON,
6d Salem, Washtenaw Co., Mich.

WANTED.—To exchange foundation for wax.
57db B. CHASE, Earlville, Madison Co., N. Y.

WANTED.—To exchange one Barnes foot-power combined saw with scroll-saw attachments, for foundation mill or press. Reasons for selling, I have steam power. A. D. ARMSTRONG,
6d Hudson, Lenawee Co., Mich.

WANTED.—To exchange nursery stock, especially evergreens, for Italian bees, queens, and two-frame nucleus with Italian bees and queen.
678d R. A. LEWIS, Cherokee, Iowa.

WANTED.—To exchange. I have a complete printing-office, consisting of 20 fonts of general job type, nearly new, some never used; 18 lbs. brevier, for circular work, all in job cases and cabinet; one Cottage hand cylinder-press, 6x10 chase, one Novelty press, 10x14 chase; composing-stick, rules, leads, etc. Cost over $200. I will take fdn., sections, cash, or other goods. Make an offer.
5tfdb E. KRETCHMER, Coburg, Iowa.

WYANDOTTE and Houdan cockerels; good birds at low prices, to close out surplus; also one *White Wyandotte* cockerel; or I will exchange for white extracted honey. Eggs for hatching, $2.50 and $1.50 per 13. J. EVANS,
6-7 Box 89, Schaghticoke, Rens. Co., N. Y.

WANTED.—To exchange good cabinet specimens of minerals, sea-shells, California curiosities, or other natural-history specimens, for untested Italian queens. Correspondence desired. Box 49. 6d
ALFRED W. HINDE, Anaheim, Los Angeles Co., Cal.

WANTED.—To exchange, Simplicity or other hives for good section or extracted honey. Will sell hives (in the flat) cheap for cash, or will take one-third pay in full colonies of bees, or poultry. Hives in any quantity to suit customers, up to a car-load per day. G. A. FARRAND,
3tfdb Rockport, Cuy. Co., Ohio.

WANTED.—To exchange Italian bees, brood, and queens, for fdn., beeswax, type-writer, or any thing having a standard market value. 6tfdb
THOMAS HORN, Box 691, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange combination telegraph-instrument for Italian queens in June.
5d F. D. WOOLVER, Munnsville, Mad. Co., N. Y.

WANTED.—To exchange white-poplar sections, sandpapered on both sides, or any kind of bee-keepers' supplies, for comb or extracted honey. Send 5c. for sample section; 50-page circular free.
6tfdb J. B. MASON & SONS,
Mechanic Falls, Androscoggin Co., Me.

WANTED.—To exchange, four Plymouth Rock pullets and one cockerel, full blood (Corwin strain), for 2000 4¼x4¼ V-groove sections, 7 to the ft. preferred, or $10.00 cash. FRANK A. EATON,
6d Bluffton, Ohio.

WANTED.—To exchange apiarian supplies at any time, or nuclei in June, for extracted honey, extractor, or foundation-mill. Circulars free.
67d C. P. BISH, Petrolia, Butler Co., Pa.

WANTED.—To exchange S. C. Brown Leghorn eggs or P. Rocks of pure breed for Pekin Duck eggs or other eggs of pure-bred fowls; also for sale, $1.00 for 15, 36 for $2.00. DAVID LUCAS, Jewett, O.

WANTED.—To exchange a good 4 h. p. engine for a planer, for beeswax at market price, or for cash. O. H. TOWNSEND, Alamo, Kal. Co., Mich.

WANTED.—To sell or exchange for apiarian supplies, extracted honey, strawberry-plants, and basswood-trees. CHAS. T. GEROULD,
6d East Smithfield, Bradford Co., Pa.

HORN PAYS EXPRESS CHARGES
SEE ADVERTISEMENT.

WANTED. A good-sized apiary to work on shares or for salary by an experienced young man of 22 years. Write with proposition to
6d **F. F. ROE, Jordan, Ind.**

30 COLONIES OF

ITALIAN AND HYBRID BEES

FOR SALE CHEAP.

Bees are in 1½-story L. and Simplicity hives; also empty Hives and Combs, Extractors, Section-racks, Wide frames, 1500 4¼x4¼ Sections, etc. Write for particulars to **J. A. BUCKLEW,**
6tfdb **Clarks, Coshocton Co., Ohio.**

Western BEE-KEEPERS' Supply House.

We manufacture Bee-Keepers' supplies of all kinds, *best quality* at *lowest prices.* Hives, Sections, Comb Foundation, Extractors, Smokers, Crates, Honey Buckets Veils, Feeders, Bee-Literature, etc., etc. Imported Italian Queens, Italian Queens, Bees by the lb., Nucleus or Colony. **"Bee-Keepers' Guide, Memoranda and Illustrated Catalogue" of 48 pages FREE** to Bee-Keepers. Address
JOSEPH NYSEWANDER,
DES MOINES, IOWA.
7tfd

RUBBER CEMENT, FOR MENDING RUBBER BOOTS, RUBBER SHOES, and all kinds of rubber goods. An article worth its weight in gold, for the saving of health, annoyance, and trouble. Printed directions for use accompany each bottle. Ten cents per bottle; ten bottles, 85c; 100, $8.00. A. I. ROOT, MEDINA, OHIO.

ITALIAN AND SYRIAN QUEENS,

Before June 15, tested, $3 00 each; untested, $1.00 each. Later tested, $2.00 each; untested, single queen, $1.00; six for $5.00; twelve or more, 75 cts. each. Untested queens warranted purely mated.
I. R. GOOD, Nappanee, Elkhart Co., Ind.

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

PURE ITALIAN BEES.

Full colonies, nuclei, bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. ☞ Send for my circular and price list. You will save money by so doing.
C. M. DIXON,
4-11-db PARRISH, FRANKLIN CO., ILL.

ALL PROGRESSIVE BEE-KEEPERS

Suffer for my price list of Bee-keepers' Supplies of all kinds. Send for price list and be convinced.
J. W. BITTENBENDER,
4-9db KNOXVILLE, MARION CO., IOWA.

ITALIAN BEES AND QUEENS,

Full Colonies, NUCLEI, AND QUEENS, CHEAP. *Send for Circular.*
C. C. VAUGHN, *4tfdb* COLUMBIA, TENN.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3btfd

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Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

BEES & PLANTS.

20 stands of Italians at $5.00; and **20** stands of hybrids at $4.00 per stand, all in Simplicity hives of Root's pattern. Also pure Gregg, Cuthbert, and Turner raspberry-plants for sale at $1.00 per 100, or $8.00 per 1000. Address
567d **A. F. ROBINSON, Marysville, O.**

BEE-HIVES,

One-Piece Sections, Section Cases, Frames, &c.,

OF SUPERIOR WORKMANSHIP, FROM
SMITH & GOODELL,
Manufacturers of and Dealers in
APIARIAN SUPPLIES,
ROCK FALLS, WHITESIDE CO., ILL.
3tfd *Send for Price List.*

RUBBER PRINTING-STAMPS

For bee-men; stamps of all kinds; send for catalogue and sample cuts printed on sections.
7d G. W. BERCAW, Berwick, Ohio.

HORN PAYS EXPRESS CHARGES SEE ADVERTISEMENT.

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15 PLYMOUTH-ROCK EGGS by express for $1.00.
579d S. A. DYKE, Pomeroy, Ohio.

The BUYERS' GUIDE is issued March and Sept., each year. ☞ **280 pages, 8½ x 11½ inches, with over 3,500 illustrations — a whole Picture Gallery. GIVES Wholesale Prices** ***direct to consumers*** **on all goods for personal or family use. Tells how to order, and gives exact cost of everything you use, eat, drink, wear, or have fun with. These INVALUABLE BOOKS contain information gleaned from the markets of the world. We will mail a copy FREE to any address upon receipt of 10 cts. to defray expense of mailing. Let us hear from you. Respectfully,**
MONTGOMERY WARD & CO.
227 & 229 Wabash Avenue, Chicago, Ill.
7 12db

STRAWBERRY PLANTS.

I will sell, from now until May 1st, in lots not less than 3000, packed and delivered at express office.
Pure Crescent ....$2.00 per 1000
" Sucker State.............................. 3.00 " "
4-5-6-7d C. F. TYSON, Centralia, Marion Co., Ill.

GOOD NEWS FOR DIXIE!

SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*
J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

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50 COLONIES BEES FOR SALE.

I have 50 stands of bees for sale, hybrids and blacks, and in the Mitchell hive, 15 frames in hive, well painted, and metal rabbets. I live on the Arkansas Midland R. R., and can ship by R. R. or water via Helena. I will take $4.50 per stand, delivered on board train, and delivered by latter part of March. PETER METZ,
3-8db Poplar Grove, Phillips Co., Ark.

Look! Honey-Comb Foundation! Look!

FRIENDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills; heavy, 45 cts. per pound; very thin, for comb honey, 10 cts. more per pound; 10% discount on all orders received before April 1st. Send for free samples. Address
C. W. PHELPS & CO.,
4-5 6db TIOGA CENTRE, TIOGA CO., N. Y.

QUEENS. 1886. QUEENS.

Reared from Imported Mothers. Two, three, and four frame nuclei. Safe arrival and satisfaction guaranteed. Send for price list. Address

5-11db FRANK A. EATON, BLUFFTON, OHIO.

BeeKeepers Supplies

WHOLESALE & RETAIL.

E.T.Lewis TOLEDO OHIO.

Orders filled the day they are received, except for bees and queens. 4tfdb

$350. ATTENTION. $350.

APIARY FOR SALE.

50 swarms of splendid bees in 2-story Langstroth hives, *comb-honey outfit complete*, in location where bees never freeze or starve. Will pay for themselves the first year. Combs all built on fdn., and wired. A splendid chance for a live man to gain a livelihood in sunny California. Reason for selling, *must have money*. Address 678d

DAVIS BROS., Box 166., Selma, Cal.

Reference, Judge Fowler, Selma, Cal. This is an irrigated district, and a complete failure is unknown. This climate is splendid for those suffering with lung complaints. Inclose stamp. Also a small farm for sale.

FOR SALE.

One second-hand fdn. mill that will roll sheets 14 inches wide. The mill is at present in New Hamburg, Ont., Can. The original price on it was $40.00, but we will now sell it at half price, or $20.00.

Also one exactly like it, owned by W. W. Bliss, of Duarte, Los Angeles Co., Cal. There is nothing wrong with these mills, except that the rolls are of smaller diameter than those we now make, in consequence of which they do not make quite so thin fdn. right in the middle of the rolls as those made now with rolls of a larger diameter. They will, however, roll narrow sheets equal to any, and will roll sheets a foot wide; but when of so great a width, the center is a trifle thicker, as explained above.

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Also one 10-inch mill, Olm make, fixed over so as to do about as good work as it ever did. Price $12.00. **A. I. ROOT, Medina, O.**

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,

22 21db **Box 172. Fresno City, Cal.**

PURE ✱ ITALIANS ✱ EXCLUSIVELY.

STOP, ✱ READ, ✱ AND ✱ ORDER.

Having determined to devote my time and attention exclusively to the production of pure Italian bees and queens, during the season of 1886, I offer, in order to reduce stock, **50 Choice Colonies of Pure Italians** in 10 Langstroth frames, guaranteed to contain at least 4 full frames of brood and 4 lbs. of bees in new chaff hive, at $10.00 each. I append my prices for the season.

My terms are cash with the order. First orders will be filled first. I will refund money at any time a customer may become dissatisfied with waiting.

My methods: One kind, and the best of that kind. Nothing except tested queens sold at any price. I will send one-year-old queens until stock is exhausted, and then this season's hatch. I will commence to send, about May 1st.

1 tested queen	$1 00	1-frame nucleus, tested queen	$2 00
1 pound of bees	1 00	2 " " " "	3 00
1 frame of brood and bees	1 00	3 " " " "	4 00
		4 " " " "	5 00

In lots of 5, five per cent discount; in lots of 10, ten per cent discount. In lots of 10 or more nuclei or pounds of bees, I will pay express charges for the first 1000 miles. Now remember, I guarantee safe arrival and absolute satisfaction in all cases. Sample of live workers free by mail. Capacity, 25 queens per day after May 1st.

I append a few from hundreds of recommendations from last season's customers.

Sodus Point, N. Y.

I am very much pleased with the tested queen I got from you last summer. JAY S. SEELEY.

Port Dover, Ontario, Can.

I believe I can make arrangements with you for queens next spring, as what I have got from you please me very well. R. M. TAYLOR.

LATER.—*I will give you my trade for queens for 1886.* R. M. T.

Mill Point, N. Y.

Queen arrived in fine condition, and I am well pleased with both queen and bees. PETER KLINE.

Penetanquistan, Ontario, Canada.

Queen received all right, and alive. She is a noble-looking queen, and pleases me better than any I have yet received. H. T. LEACH.

THOMAS HORN,

6tfdb **BOX 691, SHERBURNE, CHENANGO CO., N. Y.**

BURPEE'S SEEDS, FARM ANNUAL FOR 1886

Will be sent **FREE** to all who write for it. It is a **Handsome Book of 128 Pages**, with hundreds of new illustrations, two **Colored Plates**, and tells all about **the Best Garden, Farm and Flower Bulbs, Plants, Thoroughbred Stock** and **Fancy Poultry.** It is the only complete catalogue of the kind published, and describes **RARE NOVELTIES** in **VEGETABLES** and **FLOWERS**, of **real value**, which can not be obtained elsewhere. Send address on a postal to

W. ATLEE BURPEE & CO., PHILADELPHIA, PA.

STANLEY'S

AUTOMATIC HONEY-EXTRACTOR.

The only self-reversing Honey-Extractor known. Will do double the amount of work of any other extractor. Send for new circular, just out April 1st. Californians, send to Baker & Barnard, San Buenaventura, Ventura Co., Cal. Canadians, send to E. L. Goold & Co., Brantford, Ont., Can.

All others, address G. W. STANLEY,
7d Wyoming, N. Y.

ITALIAN QUEENS

From imported and best tested queens, $1.00 each. Tested queens, $1.75. Raised in full colonies. Bees, per lb., 90 cts.; 6 lbs. for $5.00, in wire-cloth cages; 80 colonies to draw from. Safe arrival guaranteed. Pure-bred Plymouth Rock, White and Brown Leghorn eggs, 13 for $1.00. Spider-plant seeds by mail, $1.30 per lb.; 15 cts. per oz. 7-9d

W. A. SANDERS, Oak Bower, Hart Co., Ga.

---

60 Colonies of Bees For Sale.

For particulars, call upon or address
7tfdb A. L. EDWARDS, Skaneateles, N. Y.

FOR SALE.—40 colonies of my improved strain of pure Italian bees in two-story chaff hives, @ $7.00; in single-walled hives, 1½ story @ $6.50; 50 two-story chaff hives, including frames and crates, @ $1.50; 50 single-walled hives, frames and crate, @ .90. Hives have tin roof. 1 honey-ext. for L. frame, $3.00. A wax-ext., $1.00. Must be sold immediately. 7tfdb

GEO. F. WILLIAMS, NEW PHILADELPHIA, O.

EGGS. * EGGS.

Friends, if you wish for eggs of the best pure-bred poultry, please send your order for either of the following varieties:

Langshans, Wyandottes, Houdans, Rose-Comb White Leghorns, Rose-Comb Brown Leghorns, Single-Comb Brown Leghorns.

But one variety is kept on a farm. Our stock is No. 1, and we are confident we can please you. We guarantee safe arrival of every thing that we ship. Descriptive circular free. Address

J. C. BOWMAN & CO.,
78d NORTH LIMA, MAHONING CO., OHIO.

SOLD

Having sold the 100 colonies of **Bees** offered in the March Nos. of this journal, I am now booking orders only for

NUCLEUS COLONIES AND QUEENS. ALSO BEE-KEEPERS' SUPPLIES.

Send for 1886 price list. Address
7tfdb WM. W. CARY,
Successor to Wm. W. Cary & Son. COLERAINE, MASS.

BEES IN IOWA. SEE FOSTER'S ADVERTISEMENT.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

FOR SALE.—One hundred Simplicity bee-hives $1.50 each. These hives are the Simplicity, except that they have a permanent bottom-board, and the cover is deep enough to allow the use of one case of 1-lb. sections, making them 1½-story hives. Nailed, and painted two coats, tin roof, 10 frames, all ready for the bees. Will be put on board here for $1.50 each. Address 7d

J. S. STARN, Freesburg, Highland Co., O.

FOR SALE.—15 hives of bees in first-class order, in Simplicity hives manufactured by A. I. Root, each having 10 brood-combs, *all worker comb;* 6 single-story and 9 two-story, each having 7 broad frames with tin separators and 56 sections. Also one Novice extractor. Will sell very cheap.

Address REV. R. MALLALIEN,
7d Green Village, Franklin Co., Pa.

SPECIAL BY TELEPHONE.

"Hello! Hello!"

"Well, what do you want?" "Simply to inform you that, if you want to purchase the finest Italian and Albino **Bees** and **Queens** in the world, try **F. Boomhower,** of Gallupville, N. Y. He has them at extremely low prices. Send for his circular. All right. Good-bye." 7-9d

---

Y&.. BB WYANDOTTE FOWLS, ITALIAN BEES, QUEENS, and SUPPLIES. Send for Price List.
W. H. OSBORNE, CHARDON, OHIO.
5-7-9db

NOTICE THE LOW PRICES ON

Bees, Brood, Queens, Plants, Etc.,

IN MY NEW CIRCULAR. PLEASE WRITE FOR ONE.

C. WECKESSER,
5-7-9db **Marshallville, Wayne Co., Ohio.**

QUICK SALES, SMALL PROFITS.

The 3d edition of "Handy Book, or Queen-Rearing," 300 pages, 100 illustrations, bound in cloth, by mail	$1 10
Book, and sample of *latest* improved drone and queen trap, by mail	1 50
Book and tested queen, any race (from June 1 to Oct. 1) by mail	2 00
Book and warranted queen, any race (from June 1 to Oct. 1) by mail	1 75

Money-order office, Salem, Mass. Postage-stamps will do for odd change. Send for circular.
7tfdb HENRY ALLEY, Wenham, Mass.

BEES, Full Colonies, Hybrids and Italians, for sale, in Simplicity and Adair hives. I guarantee safe arrival by express. My bees have wintered as well as usual on the summer stands. Write how many you want, and for prices. H. M. MOYER,
7-9db Hill Church, Berks Co., Pa.

FOR SALE.—**25 Colonies** of bees in S. hives, nucleus colonies in shipping-boxes, tested and untested Italian queens. 7d.

N. ADAMS, Sorrento, Orange Co., Fla.

---

101 Designs for brackets, etc., for 10c and 5 names of fret-sawyers. J. L. Hyde, Pomfret Landing, Ct.

SECTIONS

First quality white basswood sections, 4 pieces, dovetailed, 4¼×4¼, $4.00 per 1000. Cash with the order, and satisfaction guaranteed. Any size of section made to order, dovetailed or to nail, at equally low prices. 7d

F. GRANGER & SON, HARFORD MILLS, CORTLAND CO., N. Y.

Eggs for hatching I have got,
From Pekin ducks and Wyandottes;
If you will send me dollars two,
Thirteen fresh eggs I'll send to you.
"Rabbits as usual." A. A. FRADENBURG,
7-8d Port Washington, O.

---

125 STOCKS OF BEES FOR SALE.

Mostly Italians. These bees must be sold, and will be sold cheap. All in Quinby frames. Sold with or without hives. Send for prices of Italians, hybrids, and blacks. Address

WM. E. CLARK,
7-10db Oriskany, Oneida Co., N. Y.

---

50 Swarms of Bees For Sale

In 8-frame L. hives. Hives are new. Pure Italians from A. I. Root's best imported stock, $5.00 each; 20 hybrid swarms, $4.50 each; 1 fine imported queen, $5.00; 5 tested queens, $1.50 each. Safe arrival guaranteed. First ordered, first served.

J. R. REED,
7d MILFORD, JEFF. CO., WIS.

JOB LOT OF WIRE CLOTH

AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1½ CTS. PER SQUARE FT.

SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED.

This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and cages for shipping bees; making sieves for sifting seeds, etc.

Inches Wide.	No. of Rolls.	Number of Square Feet contained in each Roll Respectively.
24	3	2 rolls of 200 s. f.
26	71	22 rolls of 217, 38 of 216, 2 of 195, 2 of 215, 1 of 210 s. f.
28	11	9 rolls of 233, and 2 of 234, s. f.
34	7	5 rolls of 281 s f.
38	37	28 rolls of 316, 2 of 285, 2 of 317, 1 each of 190, 632, and 215 s. f
42	1	1 roll of 245 s f.
44	2	1 roll of 366, 1 of 348 s. f.
46	1	1 roll of 152 s f.
48	4	4 rolls of 400 s. f

FIRST QUALITY WIRE CLOTH AT 1¾ CTS. PER SQUARE FT.

The following is first quality, and is worth 1¾ cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1¾ cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

Inches Wide.	
22	1 roll 143 s. f.
24	43 rolls of 200 sq. ft. each; 1 each of 120, 168, 190, 140, 150, 140 sq. ft.
26	57 rolls of 216 sq. ft. each; 1 each of 199, 195, 201, 200, 227, 204 sq. ft.
28	73 rolls of 233, 11 of 224, 3 of 219, 8 of 222, sq. ft.; 1 each of 93, 245, 257, sq. ft.
30	36 rolls of 250 sq. ft.; 1 each of 235, 275, 240, 220, 227, 237, sq. ft.
32	13 of 266, 7 of 256, 2 of 253 sq. ft.; 1 each of 250, 275 sq. ft.
34	30 rolls of 283 sq. ft. each.
36	22 rolls of 300 sq. ft. each; 1 each of 288, 279, and 285 square ft.
38	1 roll each of 300 and 316 sq. ft.
40	1 roll of 233 square feet.
42	1 roll of 350 square feet.
46	1 roll of 192 square feet.

A. I. ROOT, Medina, Ohio.

JOB LOT OF POULTRY-NETTING,

At 1 ct. per sq. foot; 5 per cent off for two or more pieces; 10 per cent off for 10 or more pieces; 1½ cts. per sq. ft. when we have to cut it. Besides this job lot we keep in stock the regular 4-foot poultry-netting, in rolls of 150 lineal feet at same price as above. These figures give the number of sq. feet for each roll; and by dividing by the number of feet wide you can determine the length of each piece.

In. wide.	
12	1 piece each of 23, 50, 51, 70. and 94 sq. ft.
18	1 “ “ “ 20, 27, 54, 120, 147, and 203 sq. ft.
24	1 “ “ “ 14, 18, 24, 28, 32, 38, 40, 42, 46, 48, 52, 56, 68, 70, 84, 96, 104, 130, 160 176, 180, and 228 sq. ft.
30	1 piece each of 15, 25, 30, 37, 65, 110, 180, 194, 258, and 265 sq. ft.
36	1 “ “ “ 18, 18, 33, 33, 36, 39, 51, 51, 60, 63, 69, 69, 84, 87, 102, 111, 162, 180, 252, 258, 345, 375, 387, 390, and 414 sq. ft.
42	1 piece each of 21, 182, 200, 210, 350, and 350 sq. ft.
48	1 “ “ “ 24, 28, 32, 44, 60, 76, 80, 100, 100, 108, 116, 120, 124 140, and 400 sq. ft.
60	1 piece each of 45, 115, 125, and 180 sq. ft.
72	1 “ “ “ 24, 36, 42, 54, 54, 60, 66, 72, 72, 72, 138, 150, 186, 300, 450, and 552 sq. ft.

We know of nothing nicer or better for a trellis for creeping vines, than the above netting. The 12 to 24 inch is just the thing to train up green peas, fastening the netting to stakes by means of staples. If the stakes are set in substantially, one each 12 or 15 feet will answer. When the peas are stripped off the stakes, netting and all can be rolled up and laid away until another season. A. I. ROOT, MEDINA, OHIO.

Pure ITALIAN BEES and QUEENS

FOR SALE.

QUEENS BRED FROM IMPORTED STOCK.

Untested queen, just commencing to lay, - $1.00 Furnished by the 10th of May.

Tested, $2.00. Select tested, $2.50. Furnished by the 16th of May.

One-half pound bees, 90c. Furnished after the 1st of April. Cage included.

Two-frame nucleus, consisting of ½ lb. of bees, 90c, two frames partly filled with brood, 90c, and one nucleus hive, 40c. Total $2.20; guaranteed.

All bees, queens, and nuclei are to be safely delivered at your nearest express or postoffice, you paying all express charges. Order early. First ordered, first served, **C. F. UHL,**

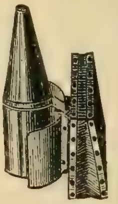
7-9d Millersburg, Holmes Co., O.

SOUTHERN HEADQUARTERS

FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address

5tfd **J. P. H. BROWN, Augusta, Ga.**



BINGHAM SMOKERS

LAST AND PLEASE.

BORODINO, N. Y., Aug. 15, 1882.

All summer long it has been "which and t'other" with me and the Cyprian colony of bees I have—but at last I am *boss;* Bingham's Conqueror Smoker did it. If you want lots of smoke just at the right time, get a Conqueror Smoker of Bingham. G. M. DOOLITTLE.

INDEPENDENCE, CAL., Jan. 2, 1886.

Messrs. Bingham & Hetherington:—Dear Sirs:—

The "Doctor" came to hand last night in good order. "It is a Daisy." Won't the little pets wink their eyes when they get some of his medicine? I have one of your "Large" smokers, which has been in use six years.

Respectfully yours, WM. MUTH-RASMUSSEN.

Bingham Smokers and Knives sent per mail, postpaid, at 65 cts. to $2.00. Send for free circular to

5tfd **BINGHAM & HETHERINGTON, ABRONIA, MICH.**

BE SURE

To send a postal card for my catalogue of **Albino and Italian Queen-Bees,** and see what my customers say about them, before purchasing elsewhere. Address D. A. PIKE,

5-7-9d SMITHSBURG, WASH. CO., MD.

BASSWOOD-TREES.

Basswood-trees, 1 to 3 feet high, per hundred,	$1.50
Hard Maple “ 3 to 5 “ “ “ “	1.50
Black-raspberry plants, 7 different kinds, per hundred, $1.00; per thousand.........	6.50

Address H. WIRTH, Borodino,

3 5-7d Onondaga Co., N. Y.

Italian Bees, Nuclei, and Queens,

From Imported and selected mothers. Send for Sixth annual Circular. **SIMON P. RODDY,**

5-7d MECHANICSTOWN, FRED. CO., MD.

Comb Fdn., Bee-Hives, and other

APIARIAN SUPPLIES.

579d **JAS. A. NELSON, Wyandotte, Kans.**

HAVING moved my large queen-rearing apiary from Lewisville to Milton, I will still furnish pure Italian bees and queens in any quantity and shape. Those wanting to start apiaries should write for prices. I also will furnish eggs from California bronze turkeys, at $1.50 per sitting of 9.

3-19d GEO. W. BAKER, Milton, Ind.

THE PRACTICAL BEE-HIVE, one of the best, L. frame, a complete hive, sent on receipt of $2.50. Bees, queens, and supplies; also Plymouth Rock and Brown Leghorn eggs, $1.50 per sitting. Address

T. G. ASHMEAD, Williamson, Wayne Co., N. Y.

3-5-7d.

C. W. Phelps & Co's Foundation Factory.

SEE ADVERTISEMENT IN ANOTHER COLUMN.

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CIRCULARS RECEIVED.

The following have recently sent us their price lists:

Dougherty & Wiley, Indianapolis, Ind., an 8-page list of bee-supplies.

W. H. Osborne, Chardon, O., a 12-page list of poultry.

Wm. Hoyt, Ripley, Me., 4-page list, bees and queens

Chas. D. Duval, 4-page list of bees and queens.

Frank McNay, Mauston, Wis., advertising sheet of apiarian supplies.

C. P. Bish, Petrolia, Pa., a 12-page list, hives a specialty.

A. D. D. Wood, River Junction, Mich., an 8-page list of bee-supplies.

C. M. Goodspeed, of Thorn Hill, N. Y., an 8-page club list of papers and magazines.

E. T. Jordan, Harmony, Ind., 4-page list of bees and queens.

J. W. Eckman, Richmond, Texas, 4-page list of bees and fdn.

J. J. Waldrip, Staples Store, Texas, an advertising sheet of bee-supplies.

T. S. Wallace, Clayton, Ill., a 1-page list of bees and queens.

Martin & Macy, North Manchester, Ind., an 18-page list of bees and poultry.

From Watts Bros., Murray, Pa., we get a circular of 45 pages that deserves special mention. The first 31 pages are devoted to a description of bee hive work and implements, the remaining part of the work being the price list. They give our A B C book so kind a notice that we are tempted to extract from it as follows:

"As the title indicates, it goes over the ground, from A to Z. It is fully up to the times, and is an invaluable aid to every bee-keeper. Its value is not to the mere art alone; but the author's fervid enthusiasm for the right, and his intensely practical views of religion, are so blended with the purely technical in all his writings that none can read them without being doubly benefited. The book is a mint of apicultural knowledge."

The following were printed recently at this office:

James M. Hyne, Stewartsville, Ind., a 12-page illustrated circular of bee-supplies.

Elijah Debusk, Friendship, Va., a 16 page list of apiarian implements.

A. B. Johnson, Clarkton, N. C., a 1-page sheet of bees and queens.

Jas. Erwin, Smith's Grove, Ky., a 4-page price list of bee-supplies.

CONVENTION NOTICES.

The Western N. Y. and Northern Pa. Bee-keepers' Association will hold their next annual meeting at Randolph, N. Y., May 4, 1886. A. D. JACOBS, Sec., Jamestown, N. Y.

The Progressive Bee-keepers' Association will meet in Macomb, Ill., April 9, 1886, afternoon and evening. Essays will be read, and an address given by Rev. E. L. Briggs, of Iowa. Everybody interested in bee-keeping is invited to attend.

J. G. NORTON, Sec.

The Northeastern Kentucky Bee-keepers' Meeting will be held at Covington, Ky., on Tuesday, April 6th, 1886. As the honey harvest is near at hand, it is hoped that the meeting will be well attended, for this Society has the praise of being among the best in the State. The Rev. L. L. Langstroth has been invited to attend; also C. F. Muth, G. W. Demaree, and others. ALEX. W. STITH, Sec.

The semi-annual meeting of the Progressive Bee-keepers' Association will be held at Grange Hall, Bedford, O., on Thursday, May 6, 1886, at 10 o'clock A. M.

PROGRAMME.

Address by the President, C. F. White, of Euclid.

"Bees and Fruit."—H. M. Chapman, of Collamer.

Essay by J. R. Reed, of Chester X Roads.

Subjects for discussion.—The Requisites of a Complete Hive. Which is more profitable—comb or extracted honey? and how shall we secure the largest yield of either?

There will be a "Question-box."

All interested in apiculture are requested to circulate this notice, and are cordially invited to come, bringing their lunch-baskets. MISS DEMA BENNETT, Sec.

Bedford, Cuyahoga Co., O.

Italian Queens, and 2-Frame Nuclei
A SPECIALTY.

My queens are reared from an imported mother, and in full colonies. Untested queen, in April, $1.25; in May, $1.00. Tested, in April, $2.50; in May, $2.00. Two-frame nuclei with untested queen, in light shipping-boxes (frames wired), in April, $2.75; in May, $2.50; in June, $2.25. If larger nuclei are desired add 75c for each frame wanted. Send for my circular and price list free. Address

A. B. JOHNSON,
CLARKTON, BLADEN CO., N. C.

ITALIAN QUEENS AND NUCLEI. Prices in February and March GLEANINGS.
7 9db ANNA M. BROOKS, Sorrento, Fla.

SCALE and MIRROR CARP for sale by the 100 or 1000. A fine lot of spawners now ready for shipment. 7tfdb W. L. McINTIRE, Mt. Vernon, O.

ITALIAN BEES, $6.50 per colony; five for $30.00. Queens from Hall and Hayhurst. Safe arrival and satisfaction guaranteed. E. A. GASTMAN,
7d Decatur, Illinois.

Pure Italians WITH TESTED QUEENS. I can dispose of a few colonies at fair prices. As to quality of bees, and personal character, I refer to J. E. Pond, Jr., Foxboro, Mass.
SAM'L COOMBS, FOXBORO, MASS.

EGGS FROM FANCY POULTRY.

Plymouth Rocks, 3 yards, 1, 2, 3 $. Wyandottes, 2 yards, 2, 3. Houdans, 2 yards, 2, 3. White and Brown Leghorns, 2 yards each, $ each. I have now in my yards, fowls from 5 of the best breeders in America. P. W. CORYA, M. D., Moore's Hill, Ind.
Reference, President Moore's-Hill College.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

10 black and 10 hybrid queens for sale now. 35c for black queens, 50 for hybrid queens.

KENNEDY & LEAHY,
Higginsville, Lafayette Co., Mo.

I have over half a dozen hybrid queens for sale at 50 cts. each. Safe arrival guaranteed. Ready by April 1. S. H. COLWICK,
Norse, Bosque Co., Tex.

8 or 10 hybrid queens for sale at 65 cts. each.
G. W. BECKHAM, Pleasant Hill, S. C.

Recent Additions to the Counter Store.

FIVE-CENT COUNTER.

1 | INK POWDERS........................... ... | 40 | 3 50

Violet, green, blue, orange, black, and red. Each package will make two ounces of good ink. We are using the same in our office, and do not find it inferior to any in the market.

TEN-CENT COUNTER.

GLUE, ROYAL, mends every thing.... ... | 90 | 8 00

This is the best cement we have ever tried. Almost any article mended with it will break anywhere else before the place mended. It holds honey labels on tin, etc.

5 | CEMENT, RUBBER.................... .... | 85 | 8 00

For mending rubber boots, rubber shoes, and all kinds of rubber goods. An article worth its weight in gold, for the saving of health, annoyance and trouble. Printed directions for use accompany each box.

FIFTEEN-CENT COUNTER.

4 | INSECT-POWDER GUN......................... | 1 25 | 11 00

A beautifully finished instrument, with a neat rubber ball instead of the frail bellows commonly used. The nozzle is polished zinc, and unscrews. This will also answer for spraying house-plants, if filled with water instead of insect-powder. Neatly made, and packed in a strong pasteboard box.

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—There is no new feature in the market. Demand from manufacturers is exceedingly dull, while it is good for jar honey from the jobbing trade. Demand is fair for comb honey. Extracted honey brings 4@8c on arrival; and choice comb honey, 12@15c in the jobbing way.

Beeswax.—There is a good demand for beeswax, and arrivals are fair. We pay 25c per lb. for good yellow, and have paid 27c for a lot of fancy.

CHAS. F. MUTH & SON,
S. E. Cor. Freeman and Central Avenues,
Mar. 20, 1886. Cincinnati, Ohio.

BOSTON.—*Honey.*—No change in honey or wax.

BLAKE & RIPLEY,
Mar. 22, 1886. 57 Chatham St., Boston, Mass.

CLEVELAND.—*Honey.*—The market is unchanged since our last report. Best white 1-lb. sections are in good demand at 14c; 2 lbs., slow at 12@13. Second quality is entirely neglected. Old is slow at 8@10. Extracted, 7@8. *Beeswax*, very scarce at 25.

A. C. KENDEL,
Mar. 20, 1886. 115 Ontario St., Cleveland, Ohio.

MILWAUKEE.—*Honey.*—The supply of choice comb honey in sections is not equal to the demand, and consignments of such are wanted. We can quote:

Choice 1-lb. sections, white,	16@18
Common 1-lb. "	14@15
Dark honey, slow,	12@14
Extracted, in kegs or bbls., white,	8@9

Beeswax, wanted.

A. V. BISHOP.
March 20, 1886. 142 W. Water St., Milwaukee, Wis.

DETROIT.—*Honey.*—Best honey in 1-lb. sections, 13@14c. Stocks in commission houses are being gradually reduced. *Beeswax.*—In good demand, at 25@27.

M. H. HUNT,
March 22, 1886. Bell Branch, Mich.

CHICAGO.—*Honey.*—The market is without particular change, unless it be to a little higher range of prices for choice domestic honey in the comb, some selling up to 18 cents per lb. Extracted is dull, with large offerings, from 6@7c per lb. *Beeswax*, 22@26c; not much offered. California comb honey, 9@12c in about 60-lb. cases, 2-lb. sections.

R. A. BURNETT,
Mar. 20, 1886. 161 S. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—Sales of comb are good, while extracted is very dull and low. One-pound sections wanted; all other grades of stocks are well supplied.

Comb, 2-lb. sections,	California,	11@12
" 2-lb. "	Eastern,	12@13
" 1-lb. "	Extra white,	14@15
" 1-lb. "	Dark,	12@13

Extracted California, in 60-lb. tin cans, 5@6c, owing to low freight. Eastern white, 5@6; Southern, 3½@4c. *Beeswax*, 23c.

CLEMONS, CLOON & CO.,
Cor. Fourth & Walnut St's,
March 23, 1886. Kansas City, Mo.

FOR SALE.—I have fourteen 22-gallon kegs of very thick dark honey, which I offer at 4c per lb., by the keg of 250 lbs., delivered at depot here. Also one keg of nice golden honey at 5c per lb. Sample sent on application. Kegs iron bound, and of best make.

M. J. HARRIS, Clay City, Clay Co., Ill.

WANTED.—Light honey in barrels or ½ barrels. Address, with sample and lowest cash price,

L. P. CHRISTIANCY & CO.,
153 Summit St., Toledo, O.

FOR SALE.—500 lbs. of well-ripened poplar and clover honey at $6.00 for keg of 100 lbs., keg thrown in. Sample by mail, 5c. CHAS. D. DUVALL,
Spencerville, Mont. Co., Md.

FOR SALE.—I have about 1300 lbs. of clover honey, warranted pure, in kegs, some 10-gallon and some 15-gallon. I will take 7c per lb. for the lot here at depot; single kegs, 7½ and 7¾ cts. Kegs thrown in.

MONT. WYRICK, Cascade, Iowa.

Wanted, Orders for Fdn.

At 45 cts. for heavy, 55 cts. for light. Wax worked. Tin Points, $1.00 per 5000. Basswood-trees 1 to 3 ft. high, $1.50 per 100; 5 to 8 ft., $4.00. Basswood seed, $1.00 per 1000, postpaid; also Wire Nails, Smokers, and Extractors. Send for Circular. 10% discount on all cash orders received before April 15th.

CHAS. STEWART,
67d **Sammonsville, Fulton Co., N. Y.**

SURE TO SEND FOR MY NEW **PRICE LIST FOR 1886,** Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb

A. B. HOWE, Council Bluffs, Ia.

CHAFF-HIVE APIARY AND FACTORY IN MISSOURI. PRICE LIST FREE.

JOHN C. STEWART,
7tfdb Hopkins, Nodaway Co., Missouri.

☞1884. **TAR-HEEL APIARIES.** 1886.☜

Warranted QUEENS, $1 Each in May | 4—ABBOT L. SWINSON—71, 66, Proprietor, GOLDSBORO, WAYNE CO., NO. CA. | American, Albino, Italians, Syrians, and Carniolans.

See Gleanings, 1st No. Mar. and May. List now ready.

P. ROCKS! Choicest pure-bred stock. Eggs, $1.50 per 13. (*Ref. Ed. Gleanings*).

7tfdb YODER & METZLER, E. Lewistown, Mah. Co., O.

FRIENDS, REMEMBER

That I expect to sell Italian Bees and pedigreed Poland-China Pigs again this coming season at hard-time prices N. A. KNAPP,
7d Rochester, Lorain Co., Ohio.

SECTIONS, $4.25 PER M.

7-12db **S. Y. ORR, Morning Sun, Iowa.**

FOR SALE. 30 COLONIES ITALIAN BEES in good condition, on 7 Langstroth frames, in shipping-boxes, $4.50, or shipped in Parker chaff hive, $6.50 per colony. Purchasers for the above can, if they prefer, send their cash to A. I. Root, Medina, O. WM. AMELANG,
Ottumwa, Wapello Co., Iowa.

PLANTS! Raspberry, Strawberry, R. Mulberry, etc. *Reduced rates.* Price list free.

7d YODER & METZLER, E. Lewistown, Mah. Co., O.

BEES FOR SALE. On account of the death of my husband, I offer for sale 7 good swarms of bees in two-story Langstroth hives, at $3.00 each. The hives are new. Ready to ship. Address MRS. MAC MCABEE,
Care of Rev. J. L. Vass,
7d Jackson, Tenn.

BUCKEYE SECTIONS, V-GROOVE.

WHITE AS SNOW. ANY SIZE. VERY CHEAP.

We manufacture the SCIENTIFIC BEE-HIVE; shipped in the flat (body and frame); can be set up in five minutes, without hammer or nails. This hive beats them all for box honey. Send for circular to

7d **J. B. MURRAY, Ada, O.**

BEES FOR SALE.—I will furnish full colonies of bees on good worker-comb, in good Langstroth hives, well painted, for $5.00 each, from April 15 to May 15, delivered on board the cars.

7-9db ALBERT POTTER, EUREKA, WINNEBAGO CO., WIS.

BEES FOR SALE CHEAP.

100 COLONIES of Pure Italian bees, in first-class hives, for sale at prices to suit the times. Write for prices before buying elsewhere.

7-8d W. A. HOUSE, MANLIUS, N. Y.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A.Whiting

Vol. XIV. APRIL 1, 1886. No. .7

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00, 5 or more, 75 cts. each. Single Number, 10 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

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NOTES FROM THE BANNER APIARY.

No. 76.

THE WINTERING PROBLEM.

A FEW weeks ago I received a call from Dr. C. M. Joslin, of Clio, Genesee Co., Mich. He has made a special study of the wintering problem, having tabulated a large number of facts concerning it. We had a very pleasant visit and discussion, and I urged him to write his views for publication. He declined, but finally agreed to send them to *me*, together with an article written by Mr. Quinby, about 12 years ago, which takes much the same view in regard to the importance of a high temperature as was advocated at the Detroit Convention. In view of the ideas that have lately been put forth upon this subject, I think Mr. Quinby's article will bear repetition. It was published in the *National Bee-Journal* for 1874, page 1 of Jan. No., and is as follows:

"I have said considerable on this subject already, but perhaps it will bear repetition. Much more ought to be said, and some things repeated, and examined in the strongest light to be found. The cause of the dreadful calamities of the past two winters should be understood as far as possible.

"A *post-mortem* investigation often discloses the *immediate* cause of a person's death. It may prove to be tubercle of the lungs, and then, unless the inquiry goes further, and finds the cause producing tubercles, but little is gained. When bee-keepers find the cause of the death of so many bees to be dysentery, it behooves them to look further, and, if possible, ascertain the cause of *that*. When we are not positive on any subject, we are apt to decide according to evidence that makes theory—or some preconceived notions of our own—probable, allowing it to take the place of direct testimony.

"Among the many investigators that have acknowledged dysentery as the cause, some few have gone further, and decided that the malady is produced by the quality of their stores—impure honey; and, to prove that honey is not healthful for them, claim that syrup of sugar, when fed, exempts from disease. Having fed the syrup quite extensively, I am pleased with the result when fed as a substitute for honey; but I have no faith in it as a preventive of dysentery, for I have fed stocks with nothing *but* that, and had them affected with it seriously. Lest some may think I mention this case to support a favorite theory of my own, I will give the statement of Mr. Elwood, of Herkimer Co., N. Y., who is a candid man, a close observer of facts, and one who has no theories of his own to bias his judgment. One year ago he fed several stocks with syrup alone, and every one had the disease as badly as those that had no syrup. These cases, even if we had no others, would show very clearly that the cause is not found in the food. It is further proved, by the case related by Mrs. Tupper, where a row of stocks that gathered their stores from the same field, each alternate one was taken and removed to a cold exposed situation, while the rest were kept warm. The first perished with dysentery, while the latter wintered well. More than 20 years ago [*now* 32 years—W. Z. H.], I became satisfied that cold weather produced dysentery. I had some stocks left on their summer stands till late in the winter, in a cold, bleak corner of the yard. Snow covered the ground. Late in Jan. they became uneasy; hundreds would leave their hives on a cold day, discharging their fæces the moment they left it. I put them into warm quarters; such as were left in the hive were quiet, and came out all right in the spring. Here is a case where they were cured of what the cold had produced.

"Food consumed by beasts generates heat, and they take it generally in proportion to the severity of the weather, to keep themselves warm. Bees seem to act on the same principle, but being, probably, natives of a warm climate, their structure is different from many animals. Being small, one alone can not generate heat enough to keep in life in a cold atmosphere. Only a compact cluster can maintain it, and then not without an abundance of food. Bees do not, when in a cold situation, seem to digest, or burn, their food, in keeping up warmth, as do the larger animals. It is exemplified when they have worked in surplus-boxes till late in the season. Take off these unfinished boxes some cool morning before the bees have all gathered into the hive, and most of them will fill themselves with honey before they can be got out of the boxes. The result is, that the honey swallowed is not digested, and warmth created, but is discharged as fæces from each as are scattered, before they regain their warm hives. When bees are very quiet in the hive in very cold weather, some must be on the outside of the cluster—I mean the cluster inside the hive between the combs, and, of course, colder than those inside. But when the weather continues cold for months, as was the case for the last two winters, those outside bees, stiffened by cold, are unable to change their position for a warmer one; their food is not digested, their bodies become swollen with fæces, and they must leave to discharge it. If the weather continues cold, the colony continues to grow smaller in proportion to the length of time and size of colony. Some colonies maintain the proper warmth by having the honey distributed so that they can have empty cells near the center, into which they can creep for mutual warmth, being more compact. Bees can exist but a short time in cold weather, when between combs of sealed honey; but they will, when properly clustered, endure any degree of cold for a time. When made warmer, don't think them safe until they are warm enough, and remain so long enough to enable them to change places with those on the inside; otherwise the result is fatal. If this is correct, it will show those who have housed their bees and lost them that they were not warm enough even then. I am aware that some will say that they have thus successfully wintered bees many times, proving to themselves beyond doubt that they were warm enough, not considering that the place that was warm enough in 1870 was not so in 1871-'2, because of the steady cold. This is proved still stronger by not finding a single case in the past two winters where the bees came out right, when only a few were housed together, unless they had the advantage of artificial heat. In discussing this subject before, I have said: 'Try the experiment of keeping them warm.' I would now say, that just this has been tried, and success has followed. M. Quinby.

"St. Johnsville, N. Y."

Dr. Joslin then comments as follows:

"While it is shown that cold is the cause of death, the best temperature is not mentioned. I will therefore quote from the ninth page of the same journal, the summing-up of the wintering of bees, by S. T. Wright, of Illinois. He says: '1. A productive queen, with bees enough to rear brood; 2. Suitable combs stored with wholesome food; 3. A pure atmosphere, of a suitable temperature, about 40° to 50° above zero being best; 4. No disturbance; total darkness and stillness being best for keeping bees quietly confined to their hives.'

"This was 12 years ago, and the problem was solved. I now come down to 1881, and quote from the pen of Geo. Grimm, as recorded in Gleanings, page 128, 1881. He says, 'Avoid late breeding in the fall; also avoid winter breeding;' to do which he keeps the temperature at 42°. Again, on page 329, Gleanings for 1881, he says: 'I repeat, leave your bees out as long as possible; they will thus consume all unsealed honey they have, and you may be assured that *all brood will have hatched*.' Another thing, and one of *more* importance, is having bees so chilled they will not again begin to breed till removed from the cellar in the spring, if the temperature is kept at 42°. Grimm's losses were 5 to 10 per cent, while H. R. Boardman's were *nothing*, and Boardman goes just the reverse; viz., encourages late breeding, also breeding in the cellar toward spring, to do which he keeps the temperature at 45° and upward. He says, if the temperature goes below 45° they take on a bad condition; 42° is not warm enough after they begin to breed, as, if lower than that, the bees have to consume too much food in keeping up the temperature. In deep wells the oxygen rises, leaving the carbonic-acid gas to settle, producing what is called 'damps,' which is death to animal life. This principle applies to all cellars or repositories where the air is undisturbed. A two-inch pipe running from the stovepipe to within two inches of the bottom of the cellar will suck up the gas and change all the air in the cellar in a few hours; but this does not regulate the temperature. I prefer the Boardman plan (see Gleanings, 1883, Oct. No.). It is good as far as it goes. I would add sub-earth ventilation, with which the temperature could be kept at about 40° until breeding begins in February, then resort to artificial heat to keep the temperature above 45°. If the weather should be very warm, raising the temperature too high, then resort to sub-earth ventilation to keep *down* the heat, which would be much better than cakes of ice or tubs of water.

"Bees do not die in summer, for they are warm enough, and have pure air. These conditions are all that is necessary to winter bees. All animal life requires pure air, and bees are no exception. When friend Hutchinson buried 57 colonies in one pit, without ventilation, the bees consumed the oxygen, leaving only carbonic-acid gas, which produced death. A little ventilation would have saved them.

"As for the pollen theory, bees never eat it when kept warm enough, hence that theory vanishes like dew before the morning sun.

"Dr. C. M. Joslin.

"Clio, Genesee Co., Mich.

"P. S.—I should like to have spoken of the temperature of 60° to 90°, and the extra amount of food eaten, the same as when too cold; of the breaking-up of the cluster to change about to eat; of the medium between the two extremes producing quiet and keeping the bees in the hive where they belong, etc., but I pause for this time. Dr. C. M. J."

There is much in the above that I should like to criticise; but the article is *now* too long, and I shall be obliged to wait until another time. I hope others will criticise the above. W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

A VISIT TO L. C. ROOT.

SOMETHING ABOUT THE WAY FRIEND ROOT WINTERS HIS BEES.

IN fulfillment of a long-cherished wish and purpose, I went east, after the recent Rochester bee-meeting, to Mohawk, and spent a couple of days with L. C. Root, son-in-law of the late Moses Quinby, and ex-president of the North-American Bee-Keepers' Association. Mohawk is a pretty little New-England-looking village in the valley of the Mohawk River, from which it takes its name. It must be lovely in the summer-time, embowered in trees, environed with hills, and with the beautiful stream just named flowing through it. Mr. Root lives in a neat story-and-half house on the edge both of the river and village. Needless to say, I received a warm brother bee-keeper's welcome. The family consists of Mrs. Root, two daughters, yet in the bloom of girlhood, and the widow Quinby, a bright, cheery, intelligent lady, younger looking than I expected to find her. Though a veritable member of the family, always with them at meal-times, the widow spends most of her time in a spacious parlor bedroom upstairs, the most conspicuous object in which is a large picture of her late husband, having a most life-like look, and wearing the calm, placid expression so characteristic of the original during life. I could have imagined I had seen him but yesterday, though it was in 1871 I last met him, at the Cleveland meeting of the N. A. Bee-Keepers' Association, when, though president, his native modesty impelled him to vacate the chair, and insist on its being filled by myself, as one of the vice-presidents —he felt so much more comfortable, he pleaded, sitting in a less conspicuous place. It was intended, as a memento of the love and esteem cherished for his memory by those present at the Detroit Convention, in December last, that the present to his widow, then and there got up, should take the form of a portrait of Mr. Quinby; but when I saw the one that had hung so long on the wall of the parlor bedroom I felt that it could not be superseded or displaced by any substitute. So the committee that had the matter in hand, being made aware of this, concluded to present a book. The one chosen was "Lord's Landmarks of History," a large-typed, beautifully bound work, in five volumes, I think. Mrs. Quinby prizes it much, spends considerable time in studying it, and is grateful for the tangible proof of respectful remembrance, both of her precious dead and of herself, to which it testifies. May she pass a long, quiet evening of life in the bosom of the family that loves her so well for her own sake, and for the sake of the long-since departed one, whose memory is still, and will continue to be, green and fragrant, not only in the recollection of his immediate descendants, but of all bee-keepers, whether they knew him personally, or only by his well-earned fame as one of the pioneers and apostles of modern apiculture!

Of course, my visit was chiefly for the purpose of gleaning all I could from the field of thought and experience in which Mr. Root has labored so conspicuously and honorably for many years. But bee-talks are almost unreportable, especially when the convention consists of only two members. I had the opportunity of inspecting Mr. Root's method of wintering, and the condition of his bees at that time. The close-ended frames are tied together and set on a bottom-board, having a large circular hole in the center. On top of the frames is a factory-cotton cover. The compact sets of frames are stacked one above another with considerable space between tiers, admitting of inspection from below; and it was an interesting sight to see the clusters of golden-banded insects hanging down, in some cases even with the bottom-board, or even still lower down. Then turning aside the cloth cover, it was evident that the frames were full up to the brim, indicating strong stocks. With the thermometer at 46°, the bees were very quiet—hibernating, I should say—certainly in *repose*. These colonies, about 60 in number, were in a portion of the cellar partitioned off for their exclusive use, and right under the living-room, where a base-burner coal-stove is going day and night. Beside the stove is an auger-hole through the floor, sufficiently large to admit the passage of a small round thermometer, whose records are daily noted and recorded. A number of other colonies are housed in a repository not far from the house. These we did not examine, for they were rather uneasy, and Mr. Root feared the temperature was a little too high, though not so high as Mr. Barber tells us his bee-cellars often are. Mr. Root has a couple of out-apiaries, as he considers his home field overstocked, there being over 1000 colonies within a three-mile radius. He finds the care of these out-apiaries very laborious, and questions if it pays to keep yards so far away from one's residence.

Mr. Root kindly drove me over to Frankfort, a little village about five miles distant, where lives an old friend of mine, Hon. Harris Lewis, who has for many years paid an annual visit to Canadian dairy conventions, at which his presence is greatly prized. Taking an interest in dairying as well as bee-keeping, myself, I have usually assisted at these meetings, and spent many pleasant hours with Mr. Lewis, both in public and in private. Mr. Lewis used to keep bees many years ago; and as the heathenish insects were then, as now, very apt to swarm on Sundays, he was in the habit of staying home from church to watch them. A Baptist minister in the neighborhood had commenced bee-keeping with a single hive; and since Mr. Lewis was staying home from church anyway, asked leave to bring his one hive, that they might be watched along with the rest. Leave was given, and the minister's hive stayed all summer, but did not swarm. In the fall he asked Mr. Lewis how he could get the bees out of the hive, so as to rifle it of the honey. Mr. L. told him if he would lift it off the bottom-board, and wheel it home on a wheelbarrow without any bottom, he thought the bees would all be out of it by the time he arrived. The minister came with his bottomless barrow on which the hive was quickly placed, he starting on his dubious journey, and Mr. Lewis to go indoors and roll on the floor with laughter at the mischievous joke he had played on the poor parson, who soon returned in a sorry plight, for he had not been wise enough to walk *ahead* of his vehicle. The consequence may be better imagined than described. Mr. Lewis helped him smother the bees remaining in the hive, and make a new start with the hive *minus* the bees. He owns it was a cruel trick; he would not repeat it, now that he is older, wiser, and better; but he thought then, if the minister was naughty enough to get him to watch his bees on Sunday, while he was preaching, he deserved some punishment. Mr. Lewis has lately remarried, after a long period of widowerhood. As we sat at the tea-table, he remarked that he thought he would start bee-keeping again, to which a soft and gentle voice responded, "No, you won't;" and I don't think he will.

Mr. Root is a quiet, unpretentious man, like his lamented father-in-law, but thoroughly up in bee-lore, and well maintains the family reputation in apiculture. He is a good citizen, a warm Prohibitionist, and his care in bringing up his children is evidenced by the fact that he never allows them to go to the public school, from fear that their minds might be unfavorably affected by the evil influences of undesirable schoolmates. A blackboard on the sitting-room wall, with a problem on it, gave proof of the assiduous care and pains taken in the home school. But not every family has a mother, once an effective schoolteacher, able and willing to add to househould duties the task of teaching the little ones. My visit was all too short; and, if practicable, I shall certainly accept the cordial invitation given to repeat it some time, and stay longer. WM. F. CLARKE.

Guelph, Ont., Mar. 15, 1886.

HOW TO PREVENT ROBBING.

SOME GOOD HINTS ON HOW TO TELL WHEN TO STOP EXTRACTING.

EVERY one who keeps very many bees will sometimes have some trouble from robber-bees; but considering the amount of work that we do with bees, we have had but very little robbing. We do not raise queens to sell, and do not have to open hives when there is a dearth of honey. We raise extracted honey only, and never extract when the bees will work on honey to any extent. We get the most of our honey from white clover and basswood. Clover comes first, and lasts until the basswood commences. The latter is the last from which we get any surplus. During this time we are traveling the roads every day, going to our different yards, and are passing the basswood-trees. We keep close watch of the blossoms, and can tell very nearly how long it will last, and we know that in good weather the bees will fill a full set of combs in five or six days.

Now, when the end of the season is within a week of its close we commence to leave in full combs of honey. The first day we leave in on the back side of the hive one comb full of honey. The following day we are at another yard, and we leave in two or three full combs of honey—putting them in the back side of the hive; the next day we are at another yard, and we leave three or four, or perhaps five, combs of honey. It depends on how fast the basswood is giving out. Our aim is to have the hives full of honey when the basswood flow is over. Our hives hold nine combs, and we keep on extracting until the bees begin to steal; but just as soon as the bees begin to crowd into the house we cease extracting, and our hives are by this means full of honey and brood. But when honey is coming in rapidly from basswood, the queen does not get a chance to put in much brood. The bees usually gather enough honey after the basswood is over for their present needs, but no surplus. We always guard against getting the bees to robbing. When we have to open hives out of season, we do it just before sundown.

HOW TO STOP ROBBING BY MEANS OF COLD WATER.

In this connection I will tell the best thing I ever found to stop a hive from being robbed; i. e., use cold water. I raise asparagus for market, and always have a large quantity of it in the fall. Now, if I have opened a hive and got the bees "on the steal," I cut a large armful of asparagus and bank up the hive with it. I then sprinkle on water. The asparagus holds so much water that the bees can not get into the hive, and the bees inside seem to think that it is a wet day, and they stay at home. Wet the asparagus two or three times an hour, and the job is done. If you have not the asparagus, use straw or a blanket, or something to wet the bees in their endeavors to get in. The idea is, to make the robbers crowd their way in through water. They won't do it. Try it.

HOW WE MARKET OUR HONEY.

Our home market takes about 10,000 to 15,000 lbs. We have our honey all graded as to quality. Our first extracting we retail at 8 cts. per lb.; our second extracting, about 9 cts.; best white-clover and basswood, at 10 cts.; in 100-lb. lots, one cent per lb. less. We put up considerable honey in tin pails, and sell at the above prices, with the additional cost of the pail. We keep two stores in town stocked with pails of honey—allowing them 10 per cent for selling. We give our customers the privilege of returning pails when empty, if they wish, but so far we have had but few returned. We sell from 6000 to 10,000 lbs. to the cracker-factories, who take our darkest grades, four or five barrels at a time, paying from 6 to 7 cts. We get our barrels back again from the cracker-men at Dubuque. Our old neighbors who have gone west, send back for 100-lb. kegs for their own use; the rest is sold to dealers in Iowa, Minnesota, Dakota, etc. We sell our best grades of honey at 8 cts. by the barrel of about 360 lbs.; no charge for the barrel. In 100-lb. kegs we sell for 9 cts. per lb. Last year we sold 21 barrels to Messrs. Thurber, Whyland & Co., of New York, at 8½ cts., delivered. After deducting freight and cost of barrels we had a fraction over 7 cts. for the honey. We did not send any east this year, as the demand and prices were better west. We have worked off the bulk of the crop, having on hand now about 7000 or 8000 lbs. not sold, and that will be gone by the time we get another crop. We usually keep over a few barrels, in case our bees should want feeding, as we *never feed sugar*. No, we have never fed a pound of sugar to our bees yet, and don't want to. We find it no small part of the bee-business, to work off so much honey and obtain good prices and get our pay for the honey. Last year we got caught on 12 barrels of honey, amounting to $345.60, sold to Geo. W. House, of Manlius, Onondaga Co., N. Y. The honey was shipped Nov. 6, 1884. Dec. 9, I received his note by mail for the amount, due in a month. Time passed, no pay. I wrote to him; no answer. I wrote three or four letters. Once he replied, "Pay soon." I made inquires about him, and found it was a bad job. He has never paid a cent. I have his note for $345.60, for sale cheap. Who bids?

Now I should like to ask our large honey-producers how they manage to get good prices for their honey, and never meet with losses. Is there any sure way to find out on short notice if a man is reliable and honest? E. FRANCE.

Platteville, Wis., Mar., 1886.

Friend F., you have given us just the information wanted. See page 276. Your honey, then, nets you, even in your largest lots, not less than 7 cts.—I am surprised and greatly pained to find that you have been made a victim of George W. House. For more than a year I have been telling him we should have to publish him if he didn't stop purchasing honey for which he didn't pay. It is a very difficult matter for an editor to decide how far he should bear with a man of this kind before warning the bee-friends against him. Mr. House purchased honey in the same way from several other bee-friends, including Mr. Chalon Fowls, of Oberlin, Ohio. His plan is to give his note, when his note is good for nothing. He has obtained more credit, from the fact that he has been a prominent writer, and a prominent worker at bee-conventions. You did exactly the right thing, friend F., in giving the whole transaction, and I hope no one will trust him again after this public exposure. You ask if there is any way to find out on short notice. It is a little difficult with bee-keepers, as they are not quoted in our commercial reports as men who are in mercantile or manufacturing business. You can do this, friend F.: Drop a postal card to us; or, if the case is urgent, telegraph. Had you sent us a telegram before you shipped that honey, we would have wired you back instantly, "Under no circumstances trust the party a copper." Mr. H. has been making promises all along to settle up all these matters; but I had no idea that he had purchased from any one any such sum as you mention.

FIFTEEN TONS OF HONEY.

HOW FRIEND COGGSHALL MANAGES.

FRIEND ROOT:—Mr. E. France, page 122, gives you his method of handling apiaries away from home. I have four apiaries. One is ten miles away, the others are two or two and three miles respectively. For this purpose I usually lease plats of ground for three years, and hire the man who lives there to hive the swarms. Let me say, here, that fifty or sixty colonies in one location will gather more honey than 200 colonies, year in and year out.

I advocate mixed farming, and extracted and box honey in the same yard. There are always some colonies that will not work in the boxes readily, and some that are not strong enough. What extracted honey I get from these is clear gain, and they are the better for it, as it gives the queen a chance to lay. A good way to keep the queen below is to lay thin pieces of boards over the frames, say 3 pieces 5 inches wide on a Langstroth hive. I would put them close together at the back end of the hive. This helps, also, to keep honey below for winter stores.

I hired my help by the day for about a month last year, except those I hired to hive the swarms. These latter did not take off any honey. I had over 22,000 lbs. of extracted and 8000 lbs. of box honey. One day, with the help of a man and a boy in the forenoon, and a man and myself in the afternoon, I took 3100 lbs. of extracted honey.

For a honey-house I have a building 12×16 and 8 feet high, boarded up and battened, with shingle roof, and with matched flooring. Such a building can be put up for $30, made out of hemlock lumber, with third-class shingles. I have the door where I carry in the honey, on a level with the ground surface, so I do not have to step up when I am carrying in a load of honey.

I always have a stationary extractor arranged so I can draw the honey at any time; also a can for the storage of extracted honey, with a faucet, and set high enough to run under a barrel. A cheese cloth, fastened on a hoop, fits the storing can. This strainer can be taken and rinsed in two minutes. I use, also, a strainer, or cullender, made out of a tin pan set on a tin bucket, and placed high enough so I do not have to stoop to work. I have a place arranged to set the combs just as high as the extractor, and as close as possible to the extractor. Each barrel, as it is filled, should be marked with the grade, when it is rolled away from the storing-can, and a wire gauze nailed over the hole. I always fill from the head, and I usually leave the honey in the honey-house until I draw to the depot. In the winter I get oak barrels that hold 350 lbs., and wax them by taking out the head, and, with a swab, I wax every seam or joint. I use rosin, two parts, wax and tallow one part. The whole secret is to have every thing ready.

I see Mr. France has a boy to carry three combs in each hand. He should have a carrying-box, so a boy could carry 8 or 12 combs. He then could accomplish as much again work in the same time. Here I am telling how other people ought to do. I intended to tell how I did.

MY STOVEPIPE SMOKER.

The smoker that I use is a stovepipe, 7 in. long, with a bottom in; a hole cut in the side with a slide to shut it off; a hook on one side, and a handle riveted on 6 or 8 inches long. Hang the smoker as thus constructed on the windward side of the hive, with some fire and chips in it. The beauty of it is, you can burn any thing, and you do not have to keep blowing it.

I bought some of your brushes; they did not answer my purpose, so I got some fine broom-corn brushes, made 9 in. wide at the brush end. I have a loop cord on it, and put it around the neck. Let it rest on the left shoulder, and allow the brush to hang by the right hand. It is always at hand wherever you are, and you do not have to stoop to pick it up. It is wide enough to clean a Langstroth frame of bees at one or two sweeps of the brush.

I will say to those who contemplate adopting the reversible hive and frames, Go slow.

18—W. L. COGGSHALL, 220—400.

West Groton, N. Y., Mar. 4, 1886.

Thanks, friend C. Facts like the above, from practical honey-producers, are what we want. I would put in a caution, however, against the use of rosin. Years ago we decided that any admixture of rosin with beeswax would, in time, give the honey a slightly resinous flavor. — Your stovepipe smoker is pretty nearly the Townley smoker, described in the A B C book.

A SWARMING-BOX TO HOLD A FRAME OF BROOD.

FRIEND KALER'S DESCRIPTION OF IT.

THE friend mentioned below has made a box for taking down swarms, arranged so as to hold a frame of unsealed brood, taking advantage of the well-known disposition of bees to cluster around and adhere to such a comb. The cut below, and description, will make it all plain.

DESCRIPTION OF CUT.

A is a swarming-box made to hold a frame of comb; made perforated.

B, rests that hold the swarming-box in place. It also contains slots to receive the handle.

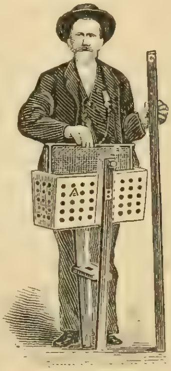
C, the handle of different lengths, to raise the box to a proper height.

D, a frame of comb to place in the swarming-box for bees to *cluster on.*

DIRECTIONS FOR USING KALER'S SWARMING-BOX.

Get your box clean; take from the hive that the swarm came from (if you like), or some other, a nice frame of comb. Place it in the box. swing the box in the rests. Then select a handle to raise the box just under the swarm. When ready, jar the bees into the box. In a few minutes they will be all clustered on the comb in the box. If you are not ready to hive them, or another swarm comes off before you are ready to hive the first one, remove the box from the rests and set it away in the shade, being careful to cover up snugly. Place another box in the rests, and proceed as in the first case. After they are all in the swarming-box they are almost as safe as in the old hive. Now, when you are ready to hive them (but do not be in a hurry), get things ready and remove the frame from the box gently, and place it in the hive. Cover up the hive, having every thing in shape. Shake the remainder of the bees from the box, in front of the hive. Watch a moment, and see that they start in, and it is done. W. S. KALER.

Andersonville, Ind., Jan. 28, 1886.



KALER'S SWARMING BOX.

GOOD REPORT FROM A LADY.

FROM 24 TO 48, AND 2820 LBS. OF HONEY; THE PROCEEDS OF ONE COLONY, 279 LBS.

I DO not know that I read any part of the varied matter in GLEANINGS with more interest than I do the reports from different bee-keepers in different localities. When we have had almost a failure, the old adge, "Misery likes company," proves true. In giving our report for the season of 1885, it might be well enough to explain that my position is only that of "general assistant in the apiary." The principal members of the firm are Rev. J. S. Woodburn and W. M. Dougherty (the latter being my only brother). In the spring we lost five or six, and sold five, leaving us about 24 to begin the season with. We raise mostly extracted honey, and by the 24th of June we found the combs full and capped completely. We took 925 lbs., gathered from the poplar-blossoms. I have been watching in GLEANINGS to see if anybody else had poplar honey. It is dark, thick, sticky, and very sweet. Our children like it on their buckwheat cakes, but it is not salable, even at a reduced price. On the 22d of July we took 1337 lbs. of beautiful basswood honey, well sealed over. In September we took 501 lbs. of buckwheat honey, which, with 100 lbs. of comb, made 2820 lbs. for our season's work, besides leaving the bees an abundance to winter on. I think our bees had access to nearly 100 acres of buckwheat, some of it quite close to them. By the way, how much buckwheat did your acre yield? Ours yielded about 24 bushels to the acre. One colony of bees gave 224 lbs. of honey; it was a pure Italian. Another, a Holy Land, gave 174 lbs., and threw off a swarm June 1st, which gave 105 lbs., making in all 279 lbs., the largest yield in the apiary. I neglected to say, in giving the amount of honey taken, that we also increased, by natural swarming and dividing, up to 48, which number is living yet. Some of them had a fly to-day.

MRS. BELL L. DUNCAN.

Black Lick, Pa., Feb. 8, 1886.

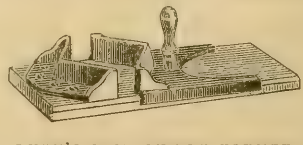
Our buckwheat yielded pretty close on to 40 bushels per acre. Thanks for your excellent report from the Holy Lands, my friend.

AN IRON SECTION-BOX FORMER.

SOMETHING THAT SEEMS TO BE A HELP, EVEN IF IT IS A LITTLE "MACHINERY."

SOME time in February friend G. R. Lyon of Greene, N. Y., sent us a section-box former shown in the cut below.

The machine is made of two heavy pieces of cast iron, arranged so as to slide easily upon a board. Pushed up together they inclose a square space a little smaller than a Simplicity section box; therefore, when with your fingers you quickly stick a box together, either one-piece or four-piece sections, drop it in the former, then, sliding up the movable piece of iron by means of the handle, every corner is pushed up smooth, and no further.



LYON'S SECTION-BOX FORMER.

The corners all come up, and also come out of the former perfectly square, ready to have the starter inserted, when it may be placed directly in the wide frames or in the cases. Where you drive them together with a mallet, they may be square, and they may not; besides, the mallet frequently drives the pieces in too far, where the grooving-saws have cut a little deeper than they ought to do. What looks more awkward than a neat basswood section box, nicely filled with honey, but out of square, because the owner failed to give it to the bees square and true? It seems to me that this instrument ought to have a large sale, even if friend Lyon has, perhaps, got the price a trifle high. He sells them at $1.00 each; one-fourth off where 50 or 100 are purchased at a time.

DOES THE QUEEN LAY DRONE OR WORKER EGGS AT PLEASURE?

FACTS TO PROVE THAT SHE DOES.

IN Mr. Dadant's article on page 95 of GLEANINGS for Feb. 1, he expresses his belief that the external conditions present at the time of the laying of the eggs by the queen determine the sex of the bee to be produced. I have reasons for thinking differently from Mr. Dadant. The queen will lay in worker-cells of foundation before it has been worked out enough to compress the spermatheca in the least, and these eggs will produce workers, and must have been fecundated by the volition of the queen. The queen will also lay eggs in queen-cells, as stated by Cook, which are larger than drone-cells; these eggs, hatching queens, must also have been fecundated by some other process than compression by the cell.

Another evidence, to me, that the laying of fecundated and unfecundated eggs is not automatic with the queen is this: In the fore part of the honey season, when the colony begins to thrive, and commences to make preparations for swarming, the queen will skip over considerable worker-comb to get to the drone-comb, and will fill it with eggs almost invariably. In the well-regulated apiary, but little drone-comb is to be found; therefore the comb-builders will build drone-comb wherever they can, even on the ends of frames; and under the above conditions, if you insert a frame containing both drone and worker comb, the drone comb will invariably be filled with eggs first.

Now, if egg-laying, or, rather, impregnating the egg, were done entirely without the will of the queen, and by the compression and non-compression of the spermatheca, why does she lay in the drone-cells first? And, vice versa, later in the season, when conditions in the hive are reversed, and the honey-flow has almost ceased, it is almost impossible to get a queen to lay eggs in drone-comb without feeding, when the colony is in a normal condition.

Mr. Dadant says that he has replaced drone-comb with worker-comb in the brood-chamber, and the queen did not seem dissatisfied with it; and he says, "If the queens, while laying, were moved by the desire to lay drones (eggs), our replacing of drone-comb by worker-cells would be useless." I suppose by this, he thinks she would show her dissatisfaction by laying unfecundated, or drone-eggs, in worker-cells; but this would be "against the rules," and not natural, and not for the good of the colony; and her laying the eggs in the proper cells indicates to me that she knows what she is about, and lays her fecundated and unfecundated eggs in the proper cells, where they ought to be, and where they will hatch out the proper occupants for the cells they occupy. I think the colony and queen do show their dissatisfaction when we replace a worker-comb to the exclusion of all drone-comb. They build drone-cells in every conceivable place they can find, and it is always filled with eggs as soon as it is built, at a certain time of the honey season; and some writers assert that they even remodel worker-foundation and build drone-cells upon it; and queens frequently go into the surplus-boxes and deposit eggs if there is drone-comb to be found there, and there is none or very little in the brood-chamber. Drone-foundation has been condemned for surplus-boxes, partly, at least, on this account.

In the last paragraph of Mr. D.'s article he suggests that the reason the cells of the wasp are not all filled alike may be on account of her inability to obtain spiders enough at the time to fill all of them alike. This may be so; but suppose that spiders happened to be very abundant, and she could fill them all as full as she does those for the females, in which case, according to Mr. D.'s theory, she would lay none but female eggs, and produce no males. This would hardly be according to nature. Also, if I am not mistaken, Sir John Lubbock says that a wasp always takes the same number of spiders. This would also go against Mr. D.'s theory, and would show that she did not provision her cells in proportion to her success in hunting, but with special reference to their needs, both male and female.

Mr. D. also says: "When the eggs of animals are mature they don't wait, but drop." I think this is not so in regard to queen-bees; for a queen taken from a populous colony, when she is laying, perhaps one or two thousand eggs per day, will stop off short, if she has no comb to lay in; and in case of the wasp, suppose the weather were very unpropitious, and spiders were very scarce, and she could get none, she would have to lay in an empty cell if she were obliged to "drop," as Mr. D. says.

I have not seen evidence enough yet to convince me that the laying of eggs by the queen is automatic, in the sense spoken of in Prof. Cook's and Mr. Dadant's articles. EDWARD B. BEEBEE.

Oneida, N. Y.

THE AUTOMATIC EXTRACTOR.

SOME HINTS IN REGARD TO USE OF.

YOUR description of the Automatic honey-extractor, as shown on page 52 of GLEANINGS for Jan. 15, is very good, but you make a very common mistake in your plan of operating the machine. Instead of starting with a "quick impulse," you should start very gently either way, and turn about one-half way round; then stop and gently but firmly start the reel in the opposite direction, and the impetus given to the comb-baskets will carry them off the vertical center, and they will pass out to their several positions. You may now increase the speed as desired; but if the combs are very heavy, do not turn too fast, but give just enough motion to throw out a part of the honey. To reverse, stop the motion and let the baskets swing clear by the center and nearly to their position, "t'other side out," and then gently start the reel the opposite direction, and the combs will take their new position without even a jar. You may now give sufficient speed to throw all of the honey from this side, and then reverse as before, and finish the side first extracted from. If the combs are very heavy or very tender, it may be well to reverse three or four times, while, if the combs are strong and the honey is new, once reversing will be sufficient. If there should be any brood in the combs, great care must be taken not to dislodge it; but if no brood is present, you can let the thing hum, and 60 seconds is time enough in which to place, extract, and remove four of the heaviest combs; and if this is not fast enough, you must get a machine with more baskets. If you will follow the above directions you may fill the baskets in the morning with hens' eggs, and reverse them all day without cracking a shell.

Your plan of starting a branch supply-house at the South, I think, is an excellent one, as it will be a great saving of freight and express charges to your customers, in that section. We have also started a factory to accommodate our friends who want extractors at the far West and Southwest. The new works are located at Topeka, Kansas, and are carried on by J. E. Stanley, my brother, who has been, for the past five years, in company with me. G. W. STANLEY.

Wyoming, N. Y.

HOW TO CHANGE HYBRIDS TO PURE ITALIANS.

ALSO SOMETHING ABOUT FEEDING CHEAP FOOD TO FILL THE BROOD-DEPARTMENT JUST BEFORE THE HONEY SEASON OPENS.

I HAVE five swarms of pure Italians, and nine swarms of hybrids and blacks. I wish to raise queens from my Italians, and Italianize all my hybrids and blacks, this spring, before they can raise drones to mate with their young queens. I am sick of the hybrids and blacks. Now, what is my best and surest way to do it?

When granulated sugar can be bought for 8 cts. per lb., and comb honey can be sold for 11 to 13 cts. per lb., will it not pay to feed bees enough sugar syrup for breeding purposes, and to fill the brood-combs, so that what honey they gather may be stored in the sections or boxes?

I mail you, in a small box, a small vial containing a sample of sorghum, which cost me 15 cts. per gal. How would it do to feed bees with, after the weather gets warm enough so that they fly nearly every day? W. H. C.

Bucklin, Mo., Feb. 27, 1886.

Friend C., if you have no black bees in your vicinity, the matter can be very easily managed. Encourage the production of drones in your hybrids and full-blood colonies by every means in your power, such as stimulative feeding, and put drone-comb in the center of the brood-nest, before the black bees will ordinarily want it to start drones. Then cut out all drone-brood from your blacks as soon as it appears. Now raise young queens from your best Italian stocks, and there will be a great probability that they will be purely mated; yes, even if there are black bees in your neighborhood. As soon as you find, by their progeny, they are purely mated, well and good; if not, discard them, and so on.—If your bees are lacking in stores, and do not get all they need from fruit-bloom, it will most assuredly pay you to fill up the brood-apartment pretty well just before honey begins to come in. For this kind of spring feeding you can take any kind of food the bees will carry into their hives. Your sorghum syrup is just as good to raise brood as granulated sugar; and perhaps better, if the bees will take it, and they generally will in the spring, when they can fly. Of course, if you value your reputation as a honey-producer, you want to be very sure that not a drop of this goes into the sections. I do not think it will be a very difficult matter to manage this.

HOUSE APIARIES, AND THE WINTERING PROBLEM.

OLIVER FOSTER'S 14-HIVE HOUSE-APIARY.

ON page 178, March 1, friend Wm. F. Clarke asks for the republication of my description of a house-apiary as given in May, 1882. In his foot-notes to friend Clarke's article, the editor says: "Before republishing the article, we should like to have him tell us how it answers by this time."

After the added experience of four years, I can say that there are important advantages in the house-apiary referred to. In fact, I am more firmly decided than ever that the fundamental principles of the most successful system of management are comprehended in the main features of this plan. You remember that I "set my foot down" on this point at the time, and it is there as flat as ever today. While nearly all hands and minds of the bee-fraternity have been at work on the wintering problem, bringing about important developments on the line of cellars and sub-earth ventilators, a considerable proportion of my time, money, and midnight meditations have been expended in the effort to avoid the disadvantages, and appropriate the advantages, of the 14-hive house-apiary, with special reference to the wintering problem.

I have each year added improvements; each winter I have tested the new plan as far as developed, with nearly my whole number of colonies, but never following the same plan any two years. After these numerous modifications, the careless observer might not recognize in my present appliances and methods the original house-apiary; but the important principles are all there.

1. Economy of ground room in the apiary.
2. Economy of steps in handling.
3. Economy of chaff in packing.
4. And, most important, economy of the heat of the bees by bringing the colonies so close together that they keep each other warm. But,

WHY ECONOMIZE HEAT

so carefully while we hear of so many colonies dying from being "packed up too warm"?

Beg pardon, but I don't believe bees were ever packed too warm, if they had plenty of *fresh air;* and it is to enable us to give this air that we wish to economize heat as far as possible. If you will present your nose at the entrance of one of these closely packed colonies I think you will be convinced that something more than heat and moisture is escaping.

The fact, that from five to ten pounds of honey (but a small per cent of which is water) passes off through the air from a colony during winter confinement, tells the same story.

Does the science of ventilating a bee-hive differ so much, after all, from that of ventilating public buildings? In scientific discussions on the ventilation of buildings we do not hear very much about the injurious effects of moisture. We do not find the attics of our churches and schoolhouses packed with "absorbing materials." They tell us that poisonous impurities, carbonic acid, etc., are constantly being thrown into the air from every breathing thing, and that these poisons cause certain death to man, beast, or insect, unless carried away by the air.

We would not underestimate the importance of complying with all the conditions necessary for reducing to the minimum the accumulation of this refuse matter, which seems to be the objective point of most efforts at present. But I think the lack of ventilation is a potent cause of over-consumption of stores, and consequent accumulation of fecal matter.

We have also reason to believe that, with perfect ventilation and a high temperature in the hive, which can be combined only by the house-apiary principle, a large per cent of the refuse matter will be discharged through the air that would otherwise clog the intestines. There are objections to the house-apiary as described in the article referred to. It takes an odd-sized frame, which is intolerable. The hives are immovable, and it is difficult to get all the bees out of a hive when desired. The bees and queen are liable to get into the wrong hive. The house has no floor, only the ground. As for bees getting out in the house, I do not consider that an objection, as I have had no such trouble. I would hardly advise any one now to build a house *just* like this.

The details of just what I would advise I will reserve until I have had a little more experience.

Before closing I wish to thank you kindly, Mr. Editor, for your kind words on page 90, and elsewhere, from time to time. Such recognitions are incentives to improvement.

10—OLIVER FOSTER, 250—296.

Mt. Vernon, Iowa, Mar. 4, 1886.

THE SOLAR WAX-EXTRACTOR, AND HOW TO MAKE IT.

FRIEND GREEN GIVES DIRECTIONS FOR ARRANGING ONE IN A SIMPLICITY HIVE.

YOU seem to be the natural friend of the small bee-keeper. Now, you can furnish this class with solar wax-extractors at a very moderate price. Most of your disciples have the Simplicity hive. To transform this into a wax-extractor, make a sash for glass that will fit on the top of a Simplicity. You can furnish these sashes either with or without glass. Furnish with them a sheet of perforated metal about 13 x 17, and a sheet of tin 14¼ x 18½; also, if you like, a dripping-pan about 13 x 17.

The buyer of one of these outfits has only to place a Simplicity hive on a tight bottom-board; place the pan inside, blocking it up until its top is about three inches below the top of the hive; lay the sheet of perforated metal on this; put on the sash; put the sheet of tin in the cover for a reflector; hinge hive, sash, and cover together temporarily, and he has a wax-extractor which can be turned back into a hive at any time when so desired. On hot days no reflector will be needed, so that all it would be really necessary to buy would be the sash and sheet of perforated metal—any pan that will go inside of a hive answering the purpose.

I have no doubt that, if you will get up outfits of this kind, you will sell hundreds of them, make bee-keepers happy, and make a good thing out of it yourself. I would go into the business myself, only, as I said before, it would be useless to compete with your facilities. Even if I could make them as well and cheaply as you could, you could sell a great many more than I could, do more good, and make more money.

In use it is to be placed on the south side of a building, and the cover leaned against it at the proper angle. If much wax is to be melted, time will be saved by turning it a little, several times a day, so as to face the sun; also that, if any one wants to run the honey and wax into the honey-house, all he will have to do is to bore a hole through the corner of the case and run a trough from the tube in the tin pan, through into a receptacle in the honey-house. Where there is much honey in the comb to be melted, as where a large quantity of cappings is to be rendered, this is the better way, as the honey becomes overheated and injured by being left in the extractor long.

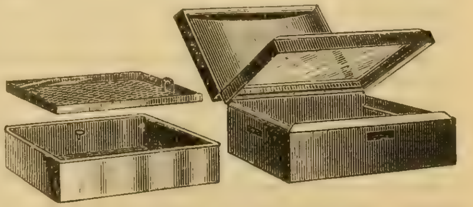
In regard to the use of a double-glass covering, some seem to think that its purpose is to "draw," "gather," or "attract" the heat of the sun, just as some persons say that a piece of metal or any thing of a dark color "draws the sun." This language, of course, is erroneous. A double glass attracts no more of the sun's rays than a single glass or no glass at all. The purpose of the double glass is to prevent the escape of the heat that is within the extractor.

It is a curious fact, that glass, while permitting *luminous* heat-rays, such as those in sunlight, to pass through it quite freely, is almost impervious to rays of heat radiating from any *dark* source. The radiant heat of the sun, passing through the glass of the solar extractor, is absorbed by the beeswax, and changed into sensible heat, in which form it can not escape by radiation the way it got in. It might be carried out by conduction, but glass is a very poor conductor. Dry air is one of the poorest of conductors. A sheet of dry air, inclosed between two sheets of glass, forms a very perfect non-conductor. We might compare this arrangement to some kinds of traps. The heat of the sun finds its way in easily enough, but it can not get out again. A single sheet of glass will conduct the heat off a great deal more readily than two. In very hot weather I have made beeswax simply by placing the comb on a sloping board in the sun, without the aid of glass to confine the heat or reflectors to increase it, so I have no hesitation in saying that a single sheet of glass will do very well during most of the summer. A double-glass extractor, though, will melt wax faster, ordinarily, thus having a greater capacity, and it can be used at many times when a single-glass extractor would not work.

J. A. GREEN.

Dayton, Ill., Feb. 9, 1886.

After the wax-extractor sent us by friend Green was received and tested, we turned it over to the foreman of our saw-room, and he shortly gave us one as shown in the drawing below.



SOLAR WAX-EXTRACTOR AS DEVISED BY FRIEND GREEN.

This wax-extractor is made exactly the size of the Simplicity hive. A pane of glass is let into the rim, exactly like the rim that goes around an ordinary cover. This is hinged to the body of the machine. Another lid is also hinged to the one containing the glass. This latter is simply a Simplicity hive-cover, with a sheet of bright tin pushed into the inside. At the left of the engraving a tin tray is shown. This tin tray has a tube at the corner to carry off the melted wax. A pipe may be connected with it to run the melted wax into the inside of a building, if you wish. Inside of this tin tray is a shallower one, made of perforated zinc. This is to contain the bits of comb. A handle is attached to each end, for convenience in lifting it out, and it is prevented from going clear down inside of the tin tray by bits of tin. Now, then, how low can these machines be furnished? We can furnish them, all complete for shipment, for $3.00; or with the above directions you can probably make one.

SUB-EARTH VENTILATION.

A DISCOURSE IN REGARD TO VENTILATING LARGE BEE-CELLARS.

IF I were planning a perfect cellar for wintering bees, I think I would have it perfectly air-tight, except one place for the entrance of fresh air, and another for the exit of foul air, meaning, by "foul air," that which is not quite so pure as the open air. The air that entered should come through an underground passage, so deep and so long that the temperature would be just right for the bees, making allowance, if necessary, for the air being somewhat cooled by the cellar walls and ceiling. It should be capable of being kept perfectly dark. Now let us see what the difficulties are in the way of securing this ideal cellar, and how, if possible, we may overcome them. Suppose in our imaginary cellar we make a small hole in one wall. Will air pass in or out through this hole? If there be a large pipe to bring in air, and a small shaft to carry it out, then air will pass *out* of the hole in the wall. If, on the other hand, the entrance-pipe be small, and the exit-shaft large, then the air will pass *in* at the hole in the wall. If there be a number of such holes, in the latter case air will pass in them all. Precisely this condition exists in my house cellar. There are three six-inch stovepipes for the exit of air, and one four inch tube for entrance, being a provision for the exit of at least seven times as much air as can enter the entrance-tube. The result is, that instead of all the air coming in through the underground tube at 40° above zero, a large part, and probably much the larger part, comes in through the various cracks about the cellar, at a temperature varying with the weather, ranging from 40° above to sometimes nearly 40° below. As a result, I keep two coal fires constantly running to warm up this cold air. To make matters better, I must just reverse the present state of affairs, and have enough air come in through the sub-earth tube to balance all that can pass out through the exit-pipes and the cracks in the wall as well. I might close one or two of the exit-pipes, but I want to be sure of enough ventilation for the 216 colonies. A friend at my elbow suggests that I might stop the cracks in the wall; but to make an air-tight cellar is exceedingly difficult, if not impossible.

Thus far, I know my ground tolerably well; but now I begin to grope, and my only excuse for going on is, that I am anxious to find out from others just what I ought to do, and perhaps I can best do so by stating some points which I think I know, and making guesses at what I don't know.

As data, I give the following from a card of the Joliet Mound Co., of Joliet, Ill. The first column gives size of tile in inches, inside diameter; the second, the number of gallons of water it will carry per minute, at a grade of 3 ft. fall per 100 ft.; and the third, the price at the factory per 100 ft.

4	163	$1.50
6	459	2.50
8	923	4.00
10	1613	6.00

This table showed me how far I might get wrong by mere theory, for I had figured that the carrying capacity would be as the squares of the diameters, making the 8-inch tile carry four times as much as the 4-inch, but it will be seen that it is nearly six times. This makes me a little chary about theorizing about any part of it, and I should very much like to ask some one who *knows*, just what I need to do, to ventilate and warm by a sub-earth pipe, this 31×33-foot cellar. In thinking the matter over, it occurred to me that by using larger tile, and partly stopping the entrance, a much shorter tube would admit air at a given temperature, than by using the smaller tile. To find out how much difference stopping would make, I went down cellar and closed the entrance of my four-inch tube about one-half, first having taken the temperature with it fully open. After leaving the thermometer in it for half an hour, I found, very much to my surprise, that the rise was so little that I could not detect it with a common thermometer. I then replaced the thermometer in the tube, and plugged the tube up tight, and left it four or five hours. On taking it out, it was not so much as one degree higher than when the tube was wide open. So I learned little about the effect of partly closing tubes; but I did learn that, practically, 100 feet was as long as there was any use in having my four-inch pipe; also, that, at the depth it is laid (the man who dug it has just told me it was fully 4 feet deep), I can not expect to bring in air warmer than 44° at the beginning of winter, and 36° toward its close, always allowing for inaccuracy of thermometers. (Bro. Root, why don't you sell *tested* thermometers, even if they do cost more?) Here is one difficulty: The sub-earth air is colder in the latter part of winter, than at the first, and it ought to be just the other way, ought it not? I don't see how we can get over this difficulty. I suppose at this distance from the factory, tile will cost much more. My four-inch tile cost more than double; and in making any estimate we might figure on double prices. The cost of laying the tile varies, of course, with the ground to be dug. I think it cost me about 50 cents per rod, or 3 cents per foot. It is clear, that the tile should be laid deeper than 4 feet. I wonder how deep it should be laid to bring in air at 45° in the latter part of winter. I'm afraid it would have to be 5 or 6 feet deep, making the work cost perhaps 5 cents per foot. Doubling the price of tile as found in the list, this would make a four-inch tube cost per foot, for tile and work, 8 cents; an eight-inch tube 13 cts., and a ten-inch tube 17 cts. As an eight-inch tube carries six times as much as a four-inch tube, suppose we close the entrance of the eight-inch tube to about one-third its full size. That will allow twice as much air to pass as the four-inch tube will carry; but as the inner surface of the eight-inch tube is double that of the four-inch, it has double the warming capacity; so with each tube 100 feet long. A double amount of air may be brought in at the same temperature through the eight-inch tube. It would be cheaper to lay one eight-inch tube at 13 cts. per ft., than to lay two four-inch tubes at 16 cts. Possibly, however, the two smaller drains might be the cheaper; but the larger one would have this decided advantage, that a large quantity of air could be flushed into the cellar at any time, even if not up to the desired temperature.

How would this plan do? Use large tile, perhaps ten-inch, laid so deep and so long that, at the beginning of winter, it would admit air about the right temperature; then every three or four weeks, as the ground became colder, close up more and more the entrance, thus keeping up or raising the temperature. Perhaps I have done enough loose guessing, and I shall be glad to be called to order by any one who will show where I am wrong, and at the same time show us what is right.

Referring to your remarks, Bro. Root, on page 169, I don't think it would be well to add any dampness to my cellar. I hardly see, either, the advantage of a heated reservoir. Would it not cost as much to heat the reservoir, as to heat the cellar direct? My three stoves will cost, in all, about $16 for the winter. I fill them each morning and evening, and that is all the attention they have. C. C. Miller.

Marengo, Ill., March 2, 1886.

Friend M., I am glad to see that you have gone into this matter so thoroughly. The rate at which the air passes through the sub-earth ventilator, I think, will have much to do with its temperature when it reaches the cellar. If a stiff breeze should pass through the four-inch tile when the air outside is below zero, it seems to me it could not be warmed, say 40°, in passing only 100 feet. The earth would be gradually frozen around the tile, commencing at the outer end. Of course, the depth would make a difference. Well, closing the opening in its inner end would, of course, make the current of air pass slower, and this might be graduated, probably, so that the ground would take the frost out of the air as fast as it passes through. In that case the temperature should not keep getting lower until the latter part of the winter. I think a large-sizeed pipe will be cheaper and better. The air from my underground reservoirs is quite warm and comfortable, even when the temperature is below zero outside. Now, when tile-factories are a good way off, and with thin flat stones easy of access, can not an underground passage be made with stones cheaper than with tile, and so as to carry in and warm a large volume of air? It seems to me there is not a question but that the heat of the earth may be so utilized as to warm buildings sufficiently to prove a very great saving of fuel. Since my warehouse is burned down, I am now obliged to build a barn. I want to build it in accordance with friend Terry's forthcoming new book; and I mean to have the stables, both for cows and horses, made so they won't freeze in any weather, and I suppose sub-earth ventilation will do it. Our poultry-men, especially those who produce eggs in winter, ought to be interested in this matter, as well as those who winter bees. You see, this is a broad subject, and one of great moment to a large class of people besides bee-keepers.

THE CONGREGATING OF DRONES.

DO DRONES FLOCK TOGETHER IN LARGE NUMBERS? AN INCIDENT THAT SEEMS TO PROVE THAT THEY DO.

SOME time in June, 1885, friend John Williams, who lives near here, called my attention to the fact that he thought drones were congregating, above a hill, about a mile east of our apiary. On the first favorable opportunity I went with him to the hill, and this is what we saw and heard.

As we approached the highest elevation, we could hear a loud humming, very much resembling bees when swarming high in the air. The most of them were too high in the air to be seen; but occasionally one would circle lower, and, by the peculiar humming which they made, we were pretty sure they were drones. If we threw a stone in the air, it would at once be surrounded; and as it fell to the ground they would dart after it and follow it to within fifteen or twenty feet of the ground. There seemed to be vast numbers of them, extending along the ridge of the hill for some distance, and they must have come for miles around.

Returning to the apiary I watched the drones as they flew from the hives, and nearly all of them flew toward the hill from which I had just returned. Now, I believe that drones congregate in large numbers, and the queen, attracted by their loud humming, flies among them and is fertilized. I do not know that there is any thing new in the above; but of one thing I am pretty sure, that there is no use trying to get queens purely mated every time, if there are drones of other races within five miles. Queen-breeders should be careful how they advertise "no black bees near here."

RETURNING SWARMS TO THE PARENT COLONY.

Our bees commenced swarming about May 25, 1885; and as the indications for a good honey season were not very good, we returned all but a few of the earliest swarms to the parent colony. By so doing, in a poor season we obtained a fair yield of honey (70 lbs. per colony), and kept them strong for winter. My experience has been, that swarms returned in this way work with the same energy as swarms hived in empty hives; and after experimenting pretty thoroughly in trying to prevent increase we have found no other plan that has proved to be so satisfactory as this. I am well aware that many would not succeed with this method, for the reason that, many times, swarms returned in this way are inclined to swarm again, therefore the novice would probably, after a few trials, give it up in disgust, and try some other plan to prevent increase. It should be remembered that, after returning such swarms, we have a powerful colony, and therefore they need an abundance of room. We usually remove two or three frames of brood from the center of the brood-nest, and supply their place with empty comb or frames of foundation. Great care should be taken, to see that every queen-cell is cut out; for if one is left, they will be pretty sure to swarm again. I know you will say, friend Root, that they can build more cells. Yes, they can, and will sometimes; but, once get them at work again, and see to it that neither the queen nor bees get out of room, and they will stay and give us such a yield of surplus as will pay for all the trouble we have had with them. O. G. RUSSELL.

Afton, Chenango Co., N. Y., Feb. 8, 1886.

Many thanks for the valuable facts you give, friend Russell. Something in regard to this matter has already appeared in our back volumes, but I believe we have never had any thing as straight and direct as the testimony you give. I have heard the drones humming in the air, just the way you mention, but I could not get a glimpse of them. What astonished me at the time was, that there seemed to be such a very great multitude of them; in fact, I could hardly conceive how there could be drones enough in several square miles to make such a roaring as I heard, and I believe you are right about it. This makes it an easy thing for queens to be fertilized quickly and surely, but it also makes it a difficult matter to get pure queens while there are bees in the woods, or in apiaries, even several miles away.—Returning swarms to the parent colony will doubtless work well where there is only a moderate yield of honey; but where swarming gets to be a mania, I think it would only complicate matters by making swarming incessant.

EGG-LAYING OF QUEENS.

SOMETHING FURTHER ON THE SUBJECT, BY FRIEND CHARLES DADANT.

IN answer to my article of Feb. 1, p. 95, Mr. Cook says that he doubts that animals drop eggs, "at just such a time, irrespective of surroundings." Well, let him put a laying hen under a box for 24 hours, and he will see her unable to prevent her egg from dropping, although she would have preferred to lay it in her nest. If a hen is unable to keep her egg, how can a queen-bee, which, according to Mr. Frank Cheshire (*Bees and Bee-keeping*), lays, in 24 hours, twice and even four times her weight in eggs?

For at least half a century, some French bee-keepers, with straw hives, have been accustomed to make artificial swarms by drumming out part of the bees. In order to ascertain the presence of the queen in the swarm, they put it, for a few minutes, on a black cloth. The white eggs, which the queen, if present, has dropped on the cloth, are easily seen, and show whether the operation has succeeded. According to the theory of Mr. Cook, as accepted by the leading bee-keepers on both continents, the queen not only knows the sex of her eggs while laying, but she knows, also, that her sons will be larger than her daughters; she knows that the colony has no need of drones before the swarming season; and she is endowed with such presence of mind that she does not make any mistake — laying drone-eggs in large cells, and worker-eggs in narrow cells. Yet, according to Mr. Cheshire, the brain of the queen is small, as is also the brain of the drone, and consequently the queen is far from being as intelligent as the workers, whose brain is comparatively large, and which, by their building of comb, their gathering and storing of provisions, their care of the brood and of the hive, etc., show that this enlarging of brain corresponds with an increase of intelligence. Yet this intelligence of the workers is not sufficient to enable them to discern a drone-larva from a worker-larva, since they make, sometimes, the blunder of trying to raise queens with drone-larvæ. Is it admissible, that, although less intelligent than the workers, the queen would know better the sex of her offspring? I think to be able to explain the whole process of this laying of the queens without resorting to imagination or the supernatural, by referring only to a natural law.

To keep every thing in its place; to perform every chemical change; to preserve the life of every being; to insure the perpetuity of every kind, nature uses a single force, or power — *attraction*. It is the same force which keeps the innumerable worlds of the universe in their relative positions to each other; which keeps the earth and the planets revolving around the sun, the moon around the earth, and prevents all the matter composing our planet from dispersing into space. It is the same force, also, which attracts the slim sprouts of a potato, forgotten in the cellar, toward the dim light of the window; the same force which attracts the rootlets of plants to the bits of manure scattered in the soil; the same which directs the anthers of some flowers to bend toward the pistil to spread on it their fecundating dust. It is the same force which, under the names of appetite, desire, love, instinct, etc., directs the animals toward the acts which keep them alive and perpetuate their kinds. All these acts are accomplished blindly by the animals. Nature does not take the trouble to tell the cow, "You will nurse your calf, to keep it alive and growing." Nature does not say to the calf, "You will suck and eat, to live and grow." She gave to the cow the blind desire of nursing her calf; and she gave to the calf the blind appetite for sucking and eating, and she remunerates both with a pleasure. For not only does nature use *attraction* to attain her aims, but she remunerates with a sense of pleasure the gratification of every desire. Such being the *universal* and *unique law* used by nature to direct the acts of all beings, let us see how it works with bees.

As soon as a queen experiences a desire to meet a drone, she goes out of the hive. She does not think, "I will have my spermatheca filled with spermatozoids, then I will use these spermatozoids, one after another, to change the sex of my eggs; for I know that, if not impregnated, they would hatch drones only, and drones are not able to do the work of the hive." Such would be her reasoning, if we were to adopt the theory of the free will of queens. To meet a drone the queen goes blindly, excited by her desire; and afterward she blindly impregnates her eggs, experiencing, also, the desire of their impregnation, and is remunerated with a pleasure. This act of fecundation being double, the desire ought to be double also. The desire for this impregnation is easily proved by the fact, that, in early spring, all the eggs which a queen lays are worker, or impregnated, deposited in narrow cells. The queen avoids the large cells given by the bee-keeper, who wants drones. As her eggs don't mature very fast, she takes time to select narrow cells. But later, when the eggs drop at the rate of one every ten or fifteen seconds, she is compelled to lay them as they come, not having time to hunt for small cells, in which she could more readily make the necessary motions to impregnate her eggs.

This desire also explains how a queen never complains of having only narrow cells at her disposal. She doesn't care for large cells, and the race of bees would be doomed for want of drones if nature had not put a check to her desire to impregnate all her eggs. This check comes from the workers, who take care to prepare large and deep cells. If we refer to the same law of attraction, we shall be able to explain, also, this building of small and large cells.

The queen is but partly mother. She can lay eggs, but she can not nurse her offspring. On the other side, the workers are partly mothers also. They do not lay, but they nurse; even more, they suckle the young.

For at least forty years it has been known that the workers have two pairs of glands in their heads and one pair in their thorax. The anterior pair of glands of the head is absent in the queens and in the drones. They are fully developed in the young, and atrophied in the old workers. It is in these glands that the milk, used by bees to nurse the young larvæ, is secreted. Mr. F. Cheshire thinks, also (and, to my mind, justly), that the same milk is used to feed the queen and incite her to lay. The operating and subsequent obliteration of these glands correspond with the double aptitude of bees as nurses first, and as store-gatherers afterward. While young, they like to take care of the queen, and to nurse the larvæ: when old, they are attached to the fields, and like to store provisions. When young, this devotion to the queen incites them to comply with her desire to have all narrow cells; and as long as she keeps pace with the building of the comb by filling the cells with eggs, no other than worker-comb is built. When old, the desire to store incites them to build store, or large cells; and if the harvest is abundant, or if the prolificness of the queen is equal to the rapidity of the building, or if the queen is missing, the influence of the old workers prevails, large cells are built, and in the height of the breeding season the queen is compelled to fill them with eggs.

Let us remark right here, that the same law applies to the human family. A young mother will gratify all the desires of her young children, regardless of cost, while a grandmother will be more careful about expenses. She will mend old clothes, and economize, to save or to acquire property. The drying of her breast, like the drying of the milk-glands of worker-bees, changes the aptitudes and the desires in both cases.

This theory has not just emerged from my mind. I explained it in some European papers about seventeen years ago, and I am confident that no other can explain as well this one of the mysteries of the bee-hive. Yet something remains unexplained. Is it the width or the depth of the drone-cells which prevents the queen from impregnating her eggs? *There* is a field open to the investigation of Mr. Ernest.
CHAS. DADANT.

Hamilton, Ill., March, 1886.

Friend D., I do not know but that we are all getting into deep water in this subject. I think I can accept most of your reasoning; but in regard to old bees not being able to feed larvæ, if I remember correctly, when this was discussed some time ago somebody proved that old bees could care for the larvæ and food, just as well as any, where they are obliged to. Perhaps somebody can point out where it was.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER IV.

THE DONATION PARTY.

A FEW families belonging to Rev. Mr. Meek's congregation lived about six miles south of his church, on what was called Crab-Apple Creek. There were not enough of them to form a church of their own; and as they lived so far from the church, and were not able to attend regularly, Mr. Meek often preached for them and their neighbors on Sabbath afternoons. Thus they had many pleasant and profitable meetings in their little red schoolhouse, and he finally succeeded in organizing and keeping up a real live Sabbath-school there. His labors for these people were much valued by them; and every winter they and a number of their neighbors made a donation visit to the parsonage. These were memorable days to the Meek children. Those honest farmers came in their large farm wagons, laden with all kinds of farm products, which filled Mr. Meek's cellar, pantry, and feed-bins, until the poor man was actually harrassed to find places in which to bestow his goods, and even meditated doing as the rich man in the parable did - pull these down and build greater. Usually these farmers were accompanied by their wives and children, who brought baskets well filled with provisions.

A table was set, reaching from one end of the dining-room to the other, on which were placed the contents of the baskets. The minister and family, although in their own home, were treated as guests, and placed at the head of the table, around which the others gathered, and due justice was done to the good things before them.

There was always abundance of talk and laughter, and all present seemed to enjoy the visit very much. On this occasion some one had brought a comb of nice honey. When it was passed around it turned the conversation on bees and honey. As Jane and Tommy now knew something about bees, they were interested and amused at what they heard.

Mrs. Cole passed the honey without taking any, saying, "I always liked the taste of honey, but I do not eat any, because I learned that, when the bees suck the honey from the flowers, they swallow it and carry it to their hives in their stomachs, and then they throw it up into their cells. I could not think of eating what had come out of a bee's stomach."

Mr. Meek replied, "Mrs. Cole, you are a little mistaken. Bees do not carry honey in their stomachs, but they are provided with a little sack for that purpose. You know the little animal we call a ground-squirrel, or chipmuck, has a little sack in each cheek, in which it carries grain and nuts to its hole; so the bee has a little sack, not in its cheek, but in its throat, in which it carries honey to its hive. You know that, in all animals, there is a pipe that extends from the mouth to the stomach. In the worker-bee this pipe is really a little sack, called the honey-sack. We might almost call it an extension of the mouth. The stomach is beyond, and no honey passes from this sack into its stomach except what is needed for its food. If we say the bee carries the honey to the hive in the back part of its mouth, it would be nearer the truth than to say in its stomach."

Mrs. Cole asked, "Is it nice to eat what comes from a bee's mouth?"

Mr. Cole said, "My wife uses sugar, molasses, and the different kinds of syrups sold in the stores, thinking these cleaner than honey. I have been south, and have visited sugar-manufactories. If I should go into details of what I have seen in manufacturing sugar and molasses, I guess she would conclude that the cleanest sweet we have is what we get from the bee-hive."

"Yes," said Mr. Meek, "not only the cleanest, but the purest and best. Molasses and syrups in these days are often made from corn, out of a substance called glucose; or, at least, glucose is frequently mixed with these. All such syrups are demanded by the people, clear and nice looking. To make them so they are treated with acids and various drugs, which tend to make them unhealthful as food; or, at least, I have been told so by physicians. How different with honey! Nature, which is only another name for God, forms the honey in the cells of the flower. The little bee, a nice cleanly insect, sucks it from the flower, and carries it in the back part of its mouth to its hive. I have read that learned men, by many experiments, have decided that the honey is not changed in the least by being thus carried. It is just the same in the hive as in the flower, only the heat of the hive boils it down, as it were, and makes it thicker. I think nice comb honey like this is the purest and cleanest sweet you can obtain. We might say it is just as it comes from the hand of God himself."

"How about the wax?" asked one in the company; "is it gathered from the buds of trees?"

"No," said Mr. Meek. "Bees do obtain a substance from buds of trees, but it is not wax. It is called propolis, and it is a kind of pitch, or bee-glue, and is used to glue up crevices in their hives. Wax comes from the bodies of the bees. It is a kind of bee-sweat, or bee-fat. On the back part of the bees' bodies are five rings, and the wax comes out at the joints of these rings in what are called wax scales. When bees secrete wax they eat much more honey than at other times."

Here Mr. Jones, an Irishman, said: "Sure an' bees must be curious lads, if they know how to do all these things. Faith, an' I believe I would keep bees if I knew where to buy some. Do you think, Mr. Meek, it would cost much to buy a couple, so I could get a start?"

Mr. Meek replied, "I suppose you mean a couple of colonies of bees."

"No," said Mr. Jones, "I mean a couple of bees. A cock-bee, and a hen-bee, or whatever you may call them."

A roar of laughter greeted this remark.

Mr. Jones looked around inquiringly, as though he could not understand why they laughed. Mr. Meek explained that his idea of starting out in the bee-business, with only two bees, was rather funny.

"Why should that tickle you?" said Mr. Jones. "You all admire my flock of White Leghorn chickens, and I began that flock with just a single pair—a cock and a hen, and now look at them. Why, this fall I had over two hundred—all birds of a feather. Why can I not begin with a couple of bees?"

"Bees are quite different from chickens," said Mr. Meek. "They will not live and prosper, unless in a hive, and that must contain a queen-bee and several thousand workers."

For some time they joked Mr. Jones about his cock-bee and hen-bee, and then Mr. Smith told a joke about one of his neighbors, an Irishman who had recently come to this country, and bought a small farm near him. One hot day, said Irishman was plowing his potatoes with a quiet, gentle old mare. In one corner of his field were some hazel-bushes into which he drove the animal, when all at once she began to prance and kick, and, turning around, rushed across the field as though some terrible thing were after her. Jerry manfully held to the lines and plow, and finally quieted the animal, but not until his shouting at her to stop had brought his wife to the field to learn what was the matter. Jerry asked his wife to hold the lines while he went to the hazel-bush to investigate the cause of the runaway. He came back with the news that there was a nest of bees in there on a little bush.

"Now, Peggy," says he, "if you will bring me the little box that is by the well I will put them into it, and they will make us honey."

Peggy returned with the box, and Jerry went cautiously into the brush; but he soon came out as rapidly as his old mare had done; and from the way he flung his arms around, it appeared as though he had a dozen arms at least. In telling Mr. Smith about it afterward, Jerry said, "I was sure I was killed; about fifty of the bees give me a dab, and each one raised a lump as large as a walnut."

Mr. Smith said, "Probably they were not bees at all."

Jerry asked what bees looked like.

Mr. Smith said, "Bees are about the size of those green-headed horse-flies you see about your team; they are brown, and some are yellow."

"Well, then," said Jerry, "those of mine were no bees at all, for they were black, had bald faces, and were as poisonous as a rattlesnake."

The company at the table laughed heartily at this, for all knew that Jerry had been trying to hive a nest of white-faced hornets.

Mr. Smith continued, "Poor Jerry had nothing to laugh at. The stings made him so sick he had to quit work, and was in bed most of the afternoon. His face swelled until both eyes were almost closed. There is one thing about bee-keeping I can not understand. Men who keep many colonies of bees will work among them day after day. I do not think a person can work with them without receiving some stings. A single sting will lay me aside from work. How can they stand it?"

Mr. Meek replied, "The pain and swelling caused by a sting do not come from the wound, but from the poison left in the wound by the sting. Our systems will become accustomed to a poison, so that it ceases to affect us. Tobacco is a poison. When a person begins its use, it sickens him. He experiences evil effects from its use; but by and by his system becomes accustomed to the poison, and these effects no longer follow its use. In like manner, after receiving stings repeatedly the bee-keeper's system is no longer affected by the poison as at the first. He does not experience the same pain from a sting, nor is it usually followed by swelling."

Mr. McMillen, a native of Scotland, next told the company about the wild bees of his native land.

He said the bumble-bees in Scotland are different from the bumble-bees in this country, in that their nests contain much more honey. In his boyhood he had spent many years herding sheep and cattle on the hills, and had found and robbed many nests of these bees. He claimed that he learned to tell a bee laden with honey, from one with an empty honey-sack, from the sound made as it flew by. When a laden bee passed him he followed it to its nest, if he could. He then marked the place so he could find it again. These nests were left until autumn, and, when well stored with honey, a number of herd-boys would go together some bright moonlight night, visit all the nests, rob them, and share the honey. He said, "I have been stung in a most terrible manner on those nights."

Mr. Meek asked, "Would you receive enough honey to pay for the stings?"

He replied "We were all poor boys, receiving only very plain food—no sweets at all, and we felt richly repaid. Each nest contained quite a nice mess of honey. Of course it was nothing like the honey we have just been eating; but I assure you it tasted much better to me then than this honey does now. After a night's robbing of nests we had honey for several days, which made quite an addition to the scanty dinners we carried to the hills. Each shepherd boy was accompanied by a dog, with which he shared his dinner. I remember my dog was very fond of this honey."

The conversation turned to other things, the meal was finished, and the children were led by Jane and Tommy to the barn, where they played many merry games until the friends departed for their homes.

To be continued May 1st.

REPORT FROM MRS. JENNIE CULP.

ALSO SOMETHING ABOUT WOMEN'S WANTS AND WOMEN'S WORK.

THE March No. of GLEANINGS is just received and contents examined. I find two things in it especially interesting to me just now. First is the statement, "Examine the bees, and, if needing stores, feed them or give sealed honey." Now, suppose you have no sealed honey (which is the case with me for the first time since I have been in the business). Would you give them sugar syrup, candy, or more maple sugar in the cake? Circumstances over which I had no control prevented my feeding as much as was necessary last fall to carry them through until fruit-bloom, and I find some of them are getting short this early. In answer, do not refer me to the A B C, for I sent that to a dear friend 50 miles distant, last year, and lent Prof. Cook's Manual to another friend in Delaware, Ohio, and Langstroth and Quinby are also on the wing; and, by the way, do not forget to send me another copy of the A B C. I do not feel as if I could "keep house" successfully without it. I have had four already; but somehow they do not stay with me.

THE PICTURE OF THE WHEELBARROW.

It just strikes my fancy. I certainly must have one, and a lawn-mower too, if a lady can use it. I will let you into the secret why I want them, Bro. Root. I have a kind of mania for having things look tidy; and having depended on "uncles and cousins" for four years, my little stock of patience is well nigh exhausted. When I ask to have my yard mowed, I am invariably met with the reply, "Oh! it does not need it yet;" and if I insist on its being done, telling them I am willing to pay well for having it done *now*, they just act as if—"well, it does not need it a bit, but I suppose I shall have to humor you." Now, that takes all the vim out of me, and, with your assistance in furnishing me tools, I will try "paddling my own canoe."

Last fall I wanted my chaff hive remodeled so as not to have to unpack in the spring. I got the idea how it could be done by using your chaff hives, when I visited you (and, by the way, I visited ten apiaries in that little trip; yours was the banner apiary. Mine the second—not in numbers, but in uniformity of hive and neatness. I have been feasting on the pleasure of that little trip ever since). I sent for a carpenter to come and do the work for me, telling what I wanted done; he sent back word he could not come. Not willing to be put off, I then went myself; he not being at home, I inquired of the "gude wife" the reason. "Oh!" said she, "he said it was just one of your whims, and he would not humor you. The hives your husband made are good enough for anybody, without any change."

I tell you that "riled" me, to think he would not even come and look at my proposed improvement, but set it down as a whim, simply because it was a *woman's* idea.

Well, the result of it was, I vowed a vow, and it was this: That if the *Lord* would give me the strength I would show some of the opposite sex that a woman can "paddle her own canoe" pretty successfully, without their assistance. Was that wicked? The strength is coming, and, one by one, I am gathering up the tools for the work. I have one hive fixed, and the remaining 55 will (Providence premitting) follow suit as soon as the weather permits.

Now, Mr. Editor, Ernest, and friends generally, for fear you will think me masculine in writing this way, I will tell you I am a little woman, not weighing over 100 lbs.; and if there is any thing I dislike, it is a masculine looking and acting woman. This I am trying to guard against.

Mrs. Francis E. Willard, President of the Women's Christian Temperance Union, says: "There is not one thing that men ought to do; there is not one thing that ought to be done, which a woman ought not to be encouraged to do, if she has the capacity to do it," and that is my sentiment exactly.

I have been slow in sending my report for 1885, not knowing in just what department to place myself. I am not discouraged, although my honey crop was an entire failure as far as surplus is concerned.

If what our president said at the bee-keepers' convention at the Ohio State Fair be true (he thought it was the fault of the bee-keepers if they failed to get a crop of honey), then you will have to put me down as a failure. But with due respect to him and his opinion, I must beg leave to differ with him. I think I am prone to be diligent in business, and left nothing undone to secure a crop of honey. The long-continued drought of the summer and fall before, and the very severe winter following, destroyed the white clover, from which we get our principal crop in this locality.

REPORT FOR 1885.

Packed in chaff hives, 47 colonies, fall of 1884, all well supplied with first-class white clover honey. Spring of 1885, all booming with bees, excepting one colony, which died. I considered that quite a success when there was such a general mortality among the bees that winter; yet no honey came of any account; at least, not enough to winter them without the aid of sugar. Wherein have I failed, if the fault is in the bee-keeper? I put into winter quarters 47 colonies, fall of 1885; two weeks ago they were all alive, and had a good fly; but for the first time since being engaged in the business, I await the outcoming with fear and trembling.

Is it true, the Ohio bee-keepers have had their convention in the city of Columbus, and I have missed attending? I certainly should have been there had I known of it. Also, what has become of Mrs. C.? Did she get her situation? Is she selling honey for some one with that mule team, wrapping oranges down south, or feeding ducks and chickens somewhere on the line between here? I have been real uneasy about her ever since I saw her advertisement, for fear that she, with her overstock of ambition, would finally land in the lunatic asylum. I am told here in the Ohio L. A. there are more farmers' wives than any other class of women; and I can account for it in no other way than in this: We are very ambitious, as a class, and we take too little time for recreation; consequently our ambition runs away with our strength, and we break down nervously. I feel condemned when I think of her, that I did not write and tell she needed *rest*, absolute *rest*, worse than she needed any thing else in this world, judging from her writings.

MRS. JENNIE CULP.

Hilliard, Ohio, Mar. 10, 1886.

Mr good friend Mrs. Culp, I glory in your ambition and energy. The wheelbarrow you speak of is exactly the thing for a woman; but I notice in your order that you mention the large size. We do not dare disobey orders, but I wondered why you chose the large one when the small one seems so particularly designed for women, especially for small women like yourself.—I agree with you, that it is your privilege to have as many whims as you please, providing you pay for them, as we know you of course do; and I want to say, for your encouragement, that it is not women only who have been treated as you have been, but I often find men who are employed here on our grounds who refuse to do what I order them to do—or, at least, won't do it without a controversy, because they think it is one of my whims, even when I am perfectly at home in the matter, and they don't know any thing about it at all. I suppose there are extremes both ways; but I think a mechanic not only stands in his own light, but is a little out of his head, when he objects to doing what he is paid for doing, because, from his standpoint, it looks like somebody's whim.—In regard to rest, I do not believe I quite agree with you, my good friend. May be farmers' wives get to the asylum because they are held by force of circumstances down to a sort of work that is to them drudgery; but I think these same women would get mental health and happiness by a change of work that might require more physical exertion than what they have been having. I, too, am small for one of my sex, and people talk to me continually about rest—yes, doctors too; but they are mistaken. I know perfectly well what kind of rest I need. A few days ago, after I had been reading letters longer than I ought to have done, I felt as if I were all coming to pieces, and as though my last days were near at hand. I took a brisk walk in the open air, but it did not seem to do a bit of good, But I found something that did cure me perfectly, and in less than half an hour too. What do you suppose it was? Why, I went and got a potato-fork that is just to my notion, in weight and make, and then I went out into the garden where the new agriculture is just beginning to "bud and blossom," and I spaded the dirt for half an hour. By that time I felt perfectly well, full of spirits, ready to fight (in any good cause), or jump over a picket fence. Do you know why? Why, I simply needed muscular exercise, coupled with some kind of work that my heart was in. The sight of my beautifully growing cabbages, lettuce, radishes, etc., and the thought of what that garden is going to be this spring and summer, gave enjoyment in the exercise, and made me well, when I was ready to take up the duties of the office until I was ready to take some more of the same kind of "*rest*."

EGG-LAYING OF QUEENS.

FRIEND HAYHURST GIVES US SOME MORE PUZZLING FACTS.

I AM glad to see this subject again brought up. Some time since I ventured to say something in favor of the Wagner theory, but our worthy editor laughed at me so that I thought it hardly safe to say any thing further; but with such a brave leader as Chas. Dadant, I believe I will venture a few suggestions.

On page 14, Prof. Cook says: "The fact that worker-eggs are often laid in cells which are hardly more than commenced; . . . . ; the fact that impregnated eggs are laid in large queen-cells." Are these facts? It is true, that, when comb-building is in progress, the queens will sometimes lay eggs along the edges in cells scarcely begun; but I have seen no evidence that these eggs are ever developed; indeed, I have learned to my cost that eggs laid in cells not over one-eighth of an inch deep will not produce *queens*. I stock my cell-building colonies with eggs laid in newly drawn-out foundation, and have repeatedly failed to get queens from the very shallow cells, and I ascribe the failure to eggs not being impregnated; so that now I do not use combs for this purpose in which the cells are less than one-fourth of an inch deep.

It is not to be denied, that the queens generally deposit the eggs in the queen-cells when the bees are preparing to swarm; but I have frequently noticed, when examining colonies in this condition, that the unoccupied queen-cells have their opening reduced to about the worker size; these are afterward enlarged to accommodate the growing larvæ. One comb will often exhibit a number of cells in the various stages of growth, from those not yet tenanted to those from which the young queens are nearly ready to hatch.

The mother-wasp, referred to by Prof. Cook, has the opportunity of enlarging or reducing the size of the opening of the cells in which she deposits her eggs. Is it not probable that a careful observation of *all* of her work will develop the fact that she does this?

Another strong point in favor of our theory is the fact mentioned by me in the article heretofore referred to; namely, that bees that have nothing but drone-combs for their brood-nest will reduce the size of the openings of the cells to that of worker-comb by building a rim around the edges. Why do they do this, if the size of the cell has no effect on the sex of the egg? I had a case of this kind come under my notice last summer. Having a good young queen from which I wished to obtain some drones, I gave her a full sheet of drone-comb in the center of her brood-nest; but the workers (the scamps!) concluding that it was not good economy to raise drones at that particular time, built rims around the edges of the cells, and raised quite a lot of workers, much to my disappointment. I have a great respect for the intelligence and reasoning powers of the queen, and I am not willing to admit that she is merely an automaton in this matter. I have no doubt that she knows just what she is about when depositing her eggs in the various kinds of cells; but it appears to me that the weight of evidence is in favor of the proposition that external mechanical means decide the sex of the eggs, instead of the accurate manipulation of internal muscles, which in higher animals are involuntary in their action. E. M. HAYHURST.

Kansas City, Mo., March 8, 1886.

Thanks, friend H., for the additional light you throw on this strange subject; and, by the way, the point you make is a good illustration of how very faulty our reasoning may be, even when we think it is very clear and plain. I have seen queens lay in the foundation, where the cells were very shallow and had just been started, and I took it for granted, as a matter of course, that she knew what she was about, and that worker-brood would be the result of this egg-laying. But when you pin me right down to it, I have to confess I do not know whether those eggs ever produced worker-bees or not. We will try to have that matter determined this summer. I have often seen drone-comb drawn out with a ring of wax, as you mention, where the bees wanted to raise worker-brood in the drone-comb. Now, I shall claim a little on my theory right here. It was the bees, of course, that put the ring of wax around the drone-cells, and, therefore, it was the bees that decided whether drones or workers should be raised. Now, why isn't it the bees all the while, and not the queen that determines the sex?

HOW TO EAT EXTRACTED HONEY.

HOW TO PUT THE CORKS IN THE MUTH JARS.

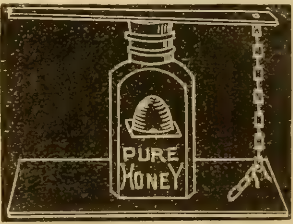
WE all know that we can not taste honey in our stomach; it is while it is in the mouth that we taste it, and Prof. Cook has truthfully said that the point of the tongue is the organ which appreciates it in the highest degree. When you spread honey on bread, I do not know of more than one way to eat it. If you like it "clear," just try it this way: Take a knife or spoon and just dip the point in the honey, then "lap" it off, using the tip of your tongue; repeat as often as you like, all the while chewing the honey, and rolling it as a sweet morsel under your tongue. Not long ago two boys bought a pound of honey at our store, and after warming it at the stove they actually *drank* it.

PUTTING CORKS INTO BOTTLES.

How do you put the corks in the Muth honey-jars? I have never seen it done, and don't know what is the best way. At first I tried putting them in with a hammer, but I soon found that jarred out a fine dust from the cork, which fell on the honey. I then made a press, which I am still using. Take a hardwood board, about 6 x 10 inches, for a base, and a lever of hard wood about 1 x 1½ x 16. Connect the lever to the base by four or six strands of heavy wire, making a loose joint near the lever. The lever and base should be just as far apart as the bottle is high. In sealing the tops, do not use pure beeswax, but take 1 lb. of beeswax and 2 lbs. of rosin; it is much better, and a great deal cheaper. Use it warm, but not hot. C. W. COSTELLOW.

Waterboro, Me., Feb. 20, 1886.

Your method of tasting honey "clear" is very similar to the way we test samples of honey sent to this office. I grant, that, to get the full benefit of the delicate flavors, we must taste the honey in the way you describe. A good many small vials are mailed here for the opinion of the editor of GLEANINGS. Running the point of his penknife down the neck of the vial, he withdraws the blade, and, with its crystal drop adhering, transfers it to the end of his tongue. If I happen to be present at the time, I sample it in like manner. It is quite essential that one or more should express their opinion upon the honey, as what would be a disagreeable twang to one might be a pleasant flavor to another. In general, however, the opinion of one or more will be found to agree; and if there is an unpleasant flavor, as of fall flowers, it is pretty sure to make itself manifest.—You ask how we insert the corks of the Muth jars. If you will turn to page 846, last year, you will see a cork-presser there illustrated and described, which we use in bottling honey. Having reduced in size the cork by means of this little implement, we then force the cork into the neck of the bottle with the palm of the hand. From your description I had the engraver make a diagram like the following, and the plan upon which it works will be readily apparent, I think. It is shown as pressing the cork into a Muth jar, the cork being just below the lever. The whole of this lever is not shown, and should be of such a length as to produce a very considerable pressure upon the cork when the hand



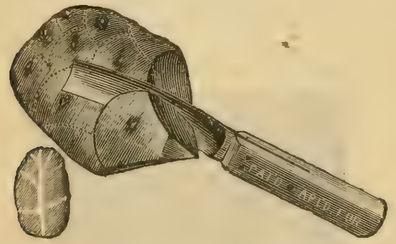
A DEVICE FOR PUTTING CORKS INTO BOTTLES.

is exerted on the extreme end. Though friend C. does not say so, it occurred to me that he probably had his chain long enough so that there would be a little surplus, or its entire length as long as the tallest jar. By means of the hook in the board, and the separate links, the chain can be hitched so as to be adapted to any desired height of bottle. The same principle can be tried by placing a jar in a suitable position upon a bench. Next nail a cleat at the proper height in the siding of the work-shop over the bench, and then with a suitable lever (one end of which is placed under the cleat) the cork can be pressed into the bottle. For different heights of bottles, cleats can be nailed at various elevations. Perhaps the latter plan would be found preferable by reason of the greater stability. ERNEST.

A KNIFE FOR CUTTING SEED POTATOES.

SOMETHING ON THE PLAN OF TERRY'S ONE-EYE SYSTEM.

VERY likely many of the friends tested Terry's system of cutting his potatoes to one eye last season. The advantages are, briefly, that we are by this means enabled to have one good strong stalk in every place, and no more. If you let ten or twelve stalks of corn grow in a hill, you certainly would not get a crop of nice ears. Where you plant a whole potato, and the whole of the eyes grow, you get a lot of small potatoes, just as you would have a lot of small ears of corn. Well, when we have got our potatoes so as to have one eye in a piece, we want as much potato around this eye as we can have; that is, we want to divide up the potato in such a manner as to have the eyes all separate, and a chunk of potato around each eye. If there are too many eyes in the potato to give each one this good chunk, select the best of them, and throw the rest away. To do this to advantage, we want medium or large potatoes. We also want the knife figured below, to cut it just right.



HUMPHREY BROTHERS' IMPROVED POTATO-KNIFE·

The saving in seed is quite an item. But our friends should remember that this plan of potato-growing requires good soil. If you take away the potato that gives the young plant nutriment, there must be rich ground or manure to take its place as soon as the young plant has used up the supply of food that starts it. We can furnish these potato-knives for an even 25 cts., packed in a neat little box, with printed instructions. If wanted by mail, add 3 cts. each extra.

CONFINING THE HEAT OF BEES IN THE HIVE.

IS IT NECESSARY TO REDUCE THE SIZE OF THE HIVE TO THE SIZE OF THE CLUSTER FOR WINTER?

OF late years, many seem to suppose that it is necessary to confine the bees on as few frames as possible during winter for their safe wintering, basing said supposition on the idea that what is needed is the confining of the heat from the bees in as small a compass as possible; reasoning from this, that the cluster of bees will be kept warm. The line of argument generally presented is, that ventilation, upper absorbents, a vacant space above and around the bees, etc., ventilates the bees to death, on the principle that warm air seeks the top of a room, and that, unless held there by a tight ceiling, the room will not become nearly so warm as it might otherwise do. Now, while there is reason in this, regarding the room, the same can not be fully applied to the bee-hive, else many colonies of bees would die which now live. Who does not remember, in back volumes of GLEANINGS, how often it has been given that the only colony surviving a hard winter in a large apiary would be one in an old box hive, which was split from bottom to top, so the snow could blow in on to the bees? or that the colony which lived was the one the owner had overlooked and left all the surplus receptacles on, the same as used in the summer? According to the views expressed by some, these colonies should have died, and those carefully packed, contracted hives should have preserved their bees alive. But the facts in bee-keeping often put fine-spun theories to flight. I have often noticed that in box-hive apiaries the best colonies of bees in the spring would be those in a tall or large hive, especially if the tall hive had stores enough in it to crowd the bees down to the bottom-board, and keep them near it all winter; yet, according to late theories, these colonies should have died or been the poorest. Here the bees were at the bottom, while, if the late theories are correct, the heat would have been at the top.

Years ago, when I was a boy, father used to put pails on his box hives in the fall, after he had taken the honey-boxes off. These pails were simply placed on the hive, and the holes leading through the top, with no covering of any kind over them; yet such colonies always wintered well. According to theory, the heat should have been in these pails, and not about the bees below; but I often found, by looking in them on moderate days, that nothing of the kind was there; but instead, the pails were full of frost, that did not melt until the weather became warm enough to melt it from the outside temperature. Again, I once cut a bee-tree, the combs of which showed that bees had lived in them for years. These combs were six feet long, but the bees had built and filled them with honey the first year, for brood had not been reared in the upper half of them, so that during the winter they had always had three feet of air-space above them, yet they did not die. Why was this, if there is truth in this small air-tight-hive principle? Well, I will try very briefly to explain my ideas regarding the matter.

A LIVING HIVE.

If we hive a natural swarm of bees in a large box, and closely watch them work, we find that they suspend themselves from the top in a compact form, appearing like an inverted cone, which, to all appearances, is nearly motionless, so that it will appear as if the bees were idle; while the fact is, that these apparently idle bees are really the hive proper, and, inside this, active work is going on, building comb, etc. This is easily seen by passing a wire suddenly through the cluster horizontally, and letting the lower half drop. Outside this living hive, or crust of bees, the temperature is often not more than 50°, while just inside they are working wax nicely with from 90 to 95°, as I found last June, by careful tests with my thermometer. It would be interesting to follow this living hive further, as it expands until it finally touches the hive; how the combs inside grow, etc., but space forbids, so I will simply note the fact that they will fill the hive unless it is very large, or the supply of honey fails too early. Now, as cool weather comes on and storage ceases, this living hive contracts, instead of expanding, thus keeping the heat inside its walls to a sufficient extent for the prosperity of the colony. As it becomes extremely cold, the walls of the living hive become more condensed, until the larger part of the bees are engaged in forming this hive; still, I have yet to see a colony which does not have an active force of bees in the center of this living hive, ready to push their way out for an attack, if the box holding the cluster is roughly disturbed. It takes some time for these crust bees to get lively enough to fly; but the inside force can do so in a second, in any colony I ever experimented with, thus showing that the material inclosing this living hive had little to do with the heat of the cluster, that being controlled by the walls of the living hive. This living hive is all the while throwing off moisture; and if the box inclosing them is of such shape that this moisture will not collect about the bees, they remain dry, healthy, and nice. This is the reason why all kinds of packing are employed to advantage, in my opinion, and why it was that A. I. Root proposed to winter bees in a felt hat not many years ago. Instances have been given where colonies of bees have been wintered successfully in a large hive containing less than one-eighth of the comb they should when filled; in fact, so little comb that the bees covered all of said comb except the outer edge all winter. But I will stop short, and close, as this article is too long already.

Borodino, N. Y. G. M. Doolittle.

Friend D., while J. A. Green and others have argued strongly that bees will winter all right when sealed up tight. even in a glass bottle, you are taking the ground that they will winter all right without any air-tight inclosure about them at all, if I understand you correctly. Well, perhaps it is a good idea to consider both extremes, and both extremes have been defended in our back volumes. I confess I have been greatly puzzled to see bees so many times winter splendidly when they were about as badly fixed, according to the rules laid down in the books, as they could be; and at other times they do not winter at all, even when they are fixed in the very best shape. I want to take exception to one point you make; that is, that there are always live bees ready to make an attack when the outer crust is rudely broken. I have several times pulled frames out of the hive, thinking the bees were dead because they seemed so motionless; and if I recollect aright, they were all tied up in hard knots, even to the very center of the cluster, and it took them some little time to wake up and get ready to sting. Where brood-rearing is going on in the middle of the winter or spring, of course they must be stirring actively. And while I think of it, I believe these colonies so knotted up in the spring had no brood, and possibly their numbers were so small their only resource to keep from freezing was to knot themselves up in this manner until the weather moderated. I have seen them thus in the fall, in the winter, and in the spring; but I believe very strong colonies usually have a warm place where bees can go on with the housework, even during zero temperature.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HAVE THE BEES THE POWER TO CONVERT WORKER-EGGS AND SMALL LARVÆ INTO DRONE-LARVÆ?

SOME time between the 15th and 20th of October last I sold five queens. Two of them went two days before the others. In due time I looked for queen-cells, and, to my surprise, I found drones capped over, and hundreds more nearly ready to cap, these drones being mixed all through the worker-brood and in worker-comb, with a goodly number of queen-cells. Hive No. 2 was examined, and found in the same condition; No. 3 the same; Nos. 4 and 5 the same. If the size of cell has any thing to do with the fertility of the eggs, how does it happen that, after removing the queen, the bees should convert worker larvæ and eggs into drone-bees? The eggs and youngest larvæ only were drones. Now, this happened in five different hives. The combs were built on fdn. bought of A. I. Root. I fancy I hear you saying, "Drone-layer," "fertile worker," or something of that sort; but I wish to say, "Not so;" this brood was in the hives at the time of removing the queens, and young workers were hatching all around it. Her majesty reigns supreme when present, I am willing to admit, but it seems to me the bees have something to do with it in her absence. Each colony reared a fine queen; but whether they were fertilized, I can not say; but I have lots of drones, any way. I would add, these drones are smaller than those reared in natural cells. J. E. Hole.

Ripleyville, Huron Co., Ohio.

Friend H., if you will examine our back volumes you will find this matter has been discussed a great deal. While many of the friends declare positively they have absolute proof that the worker-bees can thus change the sex of eggs or small larvæ, Prof. Cook and others declare it to be an impossibility. Prof. McLain, at the convention in Detroit, last fall, remarked as follows in regard to it, as nearly as I can recollect. He said that, although he had not succeeded in proving it to his satisfaction, Prof. Wylie said, when the matter was referred to him, that he had not a doubt but that the bees might do it. This has nothing to do with the question you refer to between Prof. Cook and friend Dadant; for the above was managed by the bees after the queen was taken away.

SAWDUST PACKING, VERSUS OTHER PACKING.

Bees that were fed and packed in chaff or like protection are wintering nicely in this locality. But those that were left on summer stands, unprepared for such weather as we have been having, have perished. I went into winter quarters with 65, all on summer stands.

I have been using sawdust for packing, for four years; also chaff and dry leaves; but I should give my preference to dry sawdust. I should prefer the chaff hive stuffed with dry sawdust, also some dry sawdust next to the bees on top, to hold the heat. I have been in the habit of leaning a board over the entrances when a cold wind is blowing directly against the front of the hive, and moving it as soon as it moderates or changes its course.

Moons, O., Jan. 27, 1886. LEWIS HAINES.

HORSE POWER PREFERABLE TO STEAM FOR CUTTING UP HIVE STUFF.

I have a one-horse tread power to saw stuff for hives and boxes, and can saw two-inch plank as easily as one could wish. It is pleasant work to make hives now, and I think it better than a small engine. It costs less, and almost every bee-keeper has a horse, so the expense of running it would be comparatively nothing. It will thrash, saw wood, and pump. I think many of the friends would like them better than an engine, as there is no danger of fire. The Fearless, I think, is the best.

Amity, Orleans Co., N. Y. J. W. UTTER.

Friend D., please tell us where these horse-powers can be bought, and what they cost.

BROOD WITH THEIR HEADS AT THE BOTTOM OF THE CELLS.

I helped a neighbor take the honey from a box hive; and as I had a queenless colony I saved the queen and introduced her. Afterward I found some capped brood in the corner of the box hive. The heads were at the bottom of the cells, instead of being against the cappings. Would you remove the queen? Is she worthless or not?

CHAS. C. SCHWOB.

Moundsville, W. Va., Feb. 12, 1886.

Friend S., I have never before heard of such a thing as bees with their heads toward the bottom of the cells. If there is no mistake about it, it is something I don't understand. I would not discard any queen until I had tested her fairly.

HOW TO DISPOSE OF DRONE-EGGS, ETC.

Sometimes I find a frame of drone-comb, used in upper story for extracting, full of eggs. What is the quickest and easiest way to destroy them?

How much sulphur to a given area is sufficient to destroy moth larvæ? I am afraid of using too much, and injuring the honey. I didn't use any sulphur last year, and got along all right; but perhaps I was running a risk.

Is a room that is bee-proof also moth-proof?

Feb. 17, 1886. E. H. M.

There are several ways of destroying drone-larvæ — washing them out of the way with a fountain pump; sprinkling salt on them; standing the combs in the honey-house until the larvæ die, etc. The A B C book gives full directions for fumigating combs. Where we use Italian bees, there is not very much need of fumigating the honey; at least I would not fumigate it until traces of worms begin to be seen in the honey. A bee-proof room is probably moth-proof.

CALLING THE ROLL.

Feb. 11, roll was called. Nos. 50 and 58 failed to answer. They were chaffed in on summer stands. Of 80 colonies, half are in the cellar, right under our sitting-room, where the children romp, and where the organ is required to give forth the praises of our heavenly King. Then, too, we have potatoes in the cellar. The thermometer varies from 35° to 40°, 45°, and 48°. The bees are all O. K. yet, and seem in good shape. I carried out several colonies to day, and found no smell upon their garments—no, not even a hair singed. SAM. H. BOLTON.

Benton Ridge, Hancock Co., O., 1886.

A WARNING AGAINST USING FIRE AROUND THE APIARY.

Last Saturday I came very near losing a great number of my bees by fire. The severe cold weather we had here has killed the grass and the orange leaves. I was cleaning up, and set fire, outside the apiary, to clean up a place to make a fire outside, when the wind caught the flame and carried it right among the hives. It took all hands and the cook to put out the fire. I did not lose any bees. It scorched some hives badly, and melted some wax I did not want melted, but I thank God that I got off so well. D. M'KENZIE.

New Orleans, La , Jan , 1886.

HOW TO REMOVE POLLEN FROM OLD COMB BY MEANS OF A FORCE-PUMP.

I see by GLEANINGS of Feb. 1, 1886, page 105, E. S. Hanson makes inquiry how to remove pollen from old combs. As I have removed pollen from hundreds of old combs, I will give my process. I take wool-twine, in lengths long enough to go around my frames the shortest way. I tie two strings around each frame a little way from the ends (my frames are 15½ in. long), to hold the combs from breaking out. I take a tub or barrel, and place the combs in "criss-cross." As fast as I put in combs, I fill up with water, taking care to get as much water as possible in the cells; when the combs are all in I put on a weight to keep them under water. I let them remain 48 hours. I attach the hose to my force-pump, and put the windmill in gear, then place the comb on edge, with my finger over the end of the nozzle to make the water go in a flat stream. With a good wind, the pollen will fly out lively. Hold the nozzle within six or eight inches of the comb. I have to soak some of the combs the second or third time. In the absence of a force-pump, the extractor would do nearly as well. Not one comb in 50 need be broken if properly handled.

Valparaiso, Ind., Feb. 13, 1886. T. S. BULL.

If I understand you, friend B., your plan is to soak the pollen in water until it is soft, and then wash it out with a spray of water. I presume a fountain pump would do it nicely.

FLAT-BOTTOMED FOUNDATION AS GOOD AS ANY FOR SURPLUS.

GLEANINGS for Feb. 1 is at hand, and I think it alone worth the subscription price. I used some flat-bottomed foundation last season. The thin, for sections, did as well as any; but the thicker, for brood-frames, was nearly all worked into the natural shape; that is, the bottoms of the cells were worked down into the three little lozenge-shaped plates, the same as in natural comb. I don't know whether this is always the case or not, as the bees were not doing much at this time. The weather so far has been very favorable for bees, the thermometer having been below zero only once, and warm enough for them to take a good fly every few days. There is no sign of dysentery among them yet.

FRED W. CRANSTON.

Woodstock, Champaign Co., O., Feb. 2, 1886.

Friend C., we suppose you mean the flat-bottomed foundation is as good as any after the bees have got the shape of the cell to the natural form; but the question then arises, How much time does it take the bees, when they are busy with a crop of honey?

DRONE-TRAPS, AND SOME SUGGESTIONS REGARDING THE SAME.

I experimented last year with Alley's drone and queen trap, and in each case, when I had a trap attached to the hive, the queen was caught when the bees swarmed, and the swarm would return, and settle on the trap. I think that, by having a cone attached to the Jones' guard, I can use the same as a queen-trap, and have automatic swarming in my apiary by simply putting one end of a wire-cloth tube over the cone, and letting the other end of the same enter the box or hive, with entrances secured by perforated tin. The box or hive may be set on or near the hive which is expected to swarm. The queen and some of the bees, when they leave the parent hive, will enter through the tube into the box or hive prepared for them. The returning swarm will follow, and I shall have only to move the box in the evening to a new location, and the swarming is accomplished without any watching or any attendance of the bee-keeper during the day.

If you have tried this plan, let us have your experience.

C. H. GROTE.

Mauston, Juneau Co., Wis., Dec. 14, 1885.

Your idea is tiptop, friend G., in theory; and all that remains is for somebody to put it in practice. I believe we have already had arrangements that were somewhat similar in plan of working. None of them, however, seem to have come into general use.

DOES BLASTING ROCKS WITHIN THE VICINITY OF HIVES DISTURB THE BEES?

I live right in the city. My lot is 50 by 125, with a large house on it, so I have but little room to keep my bees. I work in the shop, 1¼ miles from home. When my bees swarm my wife telephones to the shop, and I come home and hive them. I sold three hives of bees for $18.00, and have three more engaged for spring, if I have any left. They are building a sewer right past my hives. They have to blast through solid rock from 5 to 10 feet deep. They have from 20 to 30 blasts a day, and I think it disturbs my bees, for I find a great many dead bees at the entrance.

MARSHALL DARLING.

Waterbury, Ct., Jan. 2, 1886.

Friend D., if the blasting is to continue any length of time, I think I would fasten the bees in the hives and move them away for a while.

HOW SOON SHALL BEES BE PACKED FOR WINTER? ARE CHAFF HIVES DESIRABLE?

A bee-man met me a short time ago, and in the course of our conversation he turned to bees. He asked me if I had fixed up my bees. "Yes," I said, "early." He said he did not believe in fixing them up complete so early for winter, for he thought it was just like a person putting on all his winter clothing in October. When the cold weather would come, he could not feel them on him. What say you, Mr. Root? I have put my bees away in sawdust hives, and I spoke to another bee-man about leaving them in the sawdust hives all summer, so that they might not be too warm. Well, he said he had tried bees in chaff hives, and they never gave nearly as much honey as hives that were out and exposed to the hot sun. So I thought I would refer the matter to you.

DONALD STEWART.

Nairn, Ontario, Canada, Feb. 1, 1886.

Friend S., I suppose the locality of Canada might make some difference in the matter; but reports from localities, widely different in climate and temperature, have invariably shown that bees make more surplus honey in chaff hives than in single-walled hives. Your friend can easily satisfy himself of this by trying a single-walled hive and a chaff hive side by side. During hot summer days the bees in the thin hive will crowd out in great numbers, on account of the heat, while those in chaff hives will remain comfortable inside. We greatly prefer chaff hives for summer as well as for winter. This is true, however, that there are times in the spring when the warmth of the sun is beneficial to thin hives, when chaff hives, on account of their extra thickness, are not warmed up at all. On this account, it has been several times suggested that the outer covering be made of glass, inclosing a dead-air space inside of the chaff. During winter and spring, the glass would keep off the cold winds, but permit the rays of the sun to pass through readily, warming up the bees as it warms up our solar wax-extractors; and it warms them up nicely, even when the weather is zero outside. The objections to such a hive would be, first, the expense; second, without something to shade the glass, when the sun becomes too warm it would melt the whole inside of the hive down, and more or less supervision and manipulation would be necessary. With a house-apiary it might be managed better; and if it were desirable to start bees to breeding very early in the spring, there is hardly a question but that a combination of a greenhouse and house-apiary would fix it to perfection.

THE GRANULATION OF HONEY NOT CAUSED BY BEING EXTRACTED EARLY.

I believe it is generally admitted, that all pure honey will granulate at the approach of cold weather, which I find is not correct. My honey has not granulated, neither did it last year, kept in a cool honey-house, in open tin cans (that is, loose covers); also in light barrels; yet there is no appearance of granulation. I have kept bees for quite a number of years, and have never fed, all told, five dollars' worth of sugar to bees; and if my honey is not pure the bees have "played off" on me. My honey is Spanish needle. One writer, I think, said that if pure honey did not granulate it was for the reason that it was extracted too green. In answer to that, my sister, living one-fourth of a mile from me, extracted some before any of it was capped over, and hers granulated at the apppoach of cold weather, and my honey stood in the hives a month after the honey season closed, and was perfectly ripe. All was

gathered from the same source and at the same time. Three years ago my honey was partly gathered from what we call "jack-oak;" and that year it granulated.
R. ROBINSON.

Laclede, Ill., Feb. 15, 1886.

Since you mention it, friend R., I am inclined to think that well-ripened honey is not as much inclined to granulate as when it is "green," as we often term it; and it also occurs to me that honey from Spanish needles is not apt to granulate when it is thoroughly ripened. We have had some of a beautiful amber color, so thick that a saucerful could be turned over without spilling; and for all that, even zero weather produced no signs of granulation.

ARE THEY BLESSINGS?

Though I differ with you in many things, I fully agree with what you said recently in GLEANINGS, in regard to considering honey-yields as blessings from God, and that it were perhaps safer to send us more of them, if we would regard them as such. By the way, is it quite fair to call the honey-dew we have had, "bug-juice," and the like unthankful terms, when many could have considered it a blessing, as it came in a time when bees were getting comparatively no honey? I extracted it mostly, and used it for stimulative feeding; but as I did not know what it was, and did not extract all of it, I had considerable loss, but am the wiser for it.

Marshallville, O. C. WECKESSER.

Thank you, friend W. You are right, and we will try to stop using any term that sounds even in a slight degree disrespectful to the all-wise Creator. The honey-dew has indeed been a blessing to us in our business, for it has kept brood-rearing going when it would not otherwise have done so without feeding; and with the large force of honey-gatherers in our apiary, it is generally all worked up into brood, so it does no harm. Many of these things that seem at first to be hindrances can be turned into blessings if we handle them rightly; and through it all, our attitude of heart should be, "Thine be the praise and the glory."

ROACHES IN BEE-HIVES.

I have a few questions to ask about bee-keeping. Did you ever have roaches in your bee-hives? I have two hives infested with them. I have changed the bees into new boxes, and they are still in them. I see they pick out the young brood in the combs. Have you any way of getting rid of them?

Post Oak, Mo. J. S. BRUCKART.

Friend B., the trouble with roaches, I believe, belongs to the Southern and Middle States. We have none of them here. From the reports given, I have been inclined to think they did but little if any harm. If they are picking the brood out of the combs, however, it is a serious matter. Will not a strong colony repel them?

LEAVING BEE-HIVES IN A SNOWDRIFT.

You advise us to leave our hives nearly or entirely covered with snow in winter instead of keeping the entrances open. Now, have you ever successfully tried that plan for one or two months at a time? I lived the first twenty-five years of my life within twenty-five miles of Medina, O., and can fully realize the difference in the snowfall between there and here. I have often resolved to let them alone, with one or two feet of snow over the entrances; but my faith in that plan has never held out over one week at a time. This is a question of vital importance in this locality. We use chaff cushions in upper story, with an inch hole in each end of the cover for ventilation. This is an excellent locality for bee-keeping, though last season was an exception.
J. H. MANNING.

Sun, Newaygo Co., Mich.

Friend M., we have, ever since we kept bees, rejoiced to see the snow all over the hives so that they were entirely out of sight; but I do not know that we have ever had them covered up *entirely* for as long a period as two months—perhaps not more than half that time; but I have never had reason to think that a colony was injured by being covered with snow, but quite the contrary. Neither have we ever had any reports to the effect that snow would hurt bees, unless it was where the drainage was so poor that, when the sun came to thaw the snow suddenly, the wet snow, or slush, would cover the entrances. In that case, if the top of the hive were tight it might damage them.

SPEED OF BUZZ-SAWS, ETC.

When and how can I best move ten swarms in chaff hives ten rods?

3—ADAM LEISTER, 7—10, 0—70.
Brunswick, ♁ Ohio. 3 { 1— 3, 3 — 7, 7 — 10.
Feb. 19, 1886. X—$23, $20—$5, MX—$20.

Explanation: The 3 here stands for 3 years of bee-keeping. The upper row shows increase in successive years. In lower row, first figure in each set shows cash income; second figure shows cash expense for that year; X stands for "experience;" M, for "more." After name, 0 stands for surplus honey in 1885; 70, for pounds of sugar fed; work, not taken into account. At what speed do you run buzz saws and cutter-heads? A. L.

Friend L., if you can move the hives after a spell of cold weather that has prevented the bees from flying, say from ten days to two weeks, I think you will not have very much trouble. See A B C book, p. 172. There is much difference in the behavior of one colony under such circumstances, compared with that of another. Some bees will take their points and come straight back to their hive, if you should move it every few days; others will remember the location, even if they have not had a fly for a month, or perhaps all winter, and go back to the old familiar spot.—Your interpretation of your characters and figures makes one think you have been recently reading about Nebuchadnezzar and Daniel. Never mind. It illustrates how long a story can be told in a small space, and that is a lesson that a great many of us need to learn just now.—In regard to the speed of buzz-saws, it is laid down in the A B C book that the points of the teeth should move at the rate of about 8000 feet per minute; but the kind of work to be done has something to do with it; also the kind of wood to be cut. But the rule given above will be found to be not far out of the way for the generality of work.

FERTILIZING QUEENS BY MECHANICAL MEANS; FORMING NUCLEI.

I notice in GLEANINGS for Dec. 15, 1885, page 882, editorial, that Prof McLain has succeeded in "fertilizing queens by mechanical means." I have been looking for that for some time in GLEANINGS. I still don't know how, but hope that, as soon as you know, you will give it to your readers. It will be a grand thing for me and others of your readers who are surrounded by black bees and log gums. The season here has been unfavorable for bees this year, although they have made enough to winter on. I am a farmer, and do not have much time to devote to my bees. I love my bees a great deal better than I do my plow; and if I were certain that I could make money at the business, I would quit farming and go at it right. I like G. M. Doolittle's plan of forming nuclei. I have tried it a number of times, and succeeded every time. That alone has been worth to me more than GLEANINGS cost. I have introduced queens by it when other methods have failed. F. P. HISH.

Henton, Shelby Co., Ill., Dec. 21, 1885.

Friend H., I hardly think fertilization of queens by mechanical means is going to come into use very much, even if it succeeds. You will have to watch the ages of your queens, so as to take them at just the right time, and then it will be necessary for you to catch drones. The whole operation, it seems to me, is going to be too much expense to come into general use.—If I were you I would stick to the plow until your bee-business is so well established that it is a safe thing to give it your whole time; that is, make it a gradual work of letting go of farming and taking up bee culture. While the bees may give much the larger profit on the investment and labor, there are a good many risks about the business.

NATURAL SWARMING AND NON-SWARMING.

No queen, no bees; no bees, no honey. More queens, more bees; more bees, more honey. Such thoughts were in my mind in the spring of 1884; and for experiment, two strong colonies were chosen, being swarms from the same colony in 1883. One of these was to be tested by natural swarming, and the other by artificial swarming. June 4th, No. 1 swarmed, and, soon after, the old colony was divided into nuclei of one and two frames each, all having good queen-cells. One of these swarmed (a mere handful), and was hived on a comb and a frame with a little brood on it. These all raised good queens; and as soon as hatching brood could be spared from the new swarm, a frame was given to each nuclei, building them all up evenly. August 2d the new colony swarmed again, and, by division, two more colonies were made. August 13th one of the colonies swarmed and was not seen. No. 2 swarmed June 8th, and again the 24th.

The result of the season was, No. 1 an increase of ten colonies and 325 lbs. of honey; and No. 2, an increase of two colonies and 191 lbs. of honey, while the best yield from a strong colony that did not swarm was 156 lbs. of honey. There was no honey taken from the brood-chamber, which was well filled for winter supplies. The average yield of the apiary was 80 lbs. of honey. In the spring of 1885, on a farm seven miles from home, were three colonies of bees which I wished to Italianize; and as there was no one to watch them they were divided so as to prevent swarming, but failed in one instance. Three dollar queens were used, and divisions were made till there were 17 new colonies with Italian queens. The hives were well filled, and a surplus taken of 353 lbs. of honey from the upper stories. The division was carried too far for the largest yield of honey. An increase of 7 colonies in the first, and 13 the last trial, would have given a larger surplus. In the first experiment, those that I tried in 1884, allowing that the new colonies had 40 lbs. of honey each, the comparison shows that division gave 725, natural swarming 271, and non-swarming, 156 lbs. of honey. Successful as these experiments have proven, I would not advise any mathematical Californian to waste paper in calculation of what he might do with 100 colonies increased in a like ratio for five years. L. M. BROWN.

Sergeant's Bluff, Iowa, Mar. 8, 1886.

Friend B., the point you make is a good one; yet much of the success you have met, I think, depends upon the fact that your locality is not overstocked at all. On the contrary, perhaps there is honey for several times as many bees as you keep. In such cases, more honey will be secured by judicious dividing or artificial swarming, and by getting as many queens to lay eggs as early in the season as you can. When, however, you have from 50 to 100 colonies in one locality, so that the flowers are all visited, and the bees begin to crowd each other, then there will be an advantage in the prevention of swarming. I should say, that in any locality, not overstocked, more honey will probably be secured from a single colony by judicious increase than with no increase.

A TRIP TO CALIFORNIA; ALSO SOMETHING ABOUT A VISIT TO FRIEND HAYHURST.

I have recently returned from my winter's trip to California, and have been and am taking pleasure in reviewing old acquaintances and shaking hands with old friends, so I would not forget you. I find, that in central California, in the great river valley, what honey they get is of no great value, being dark and strong. There are a great many bees in the trees, sometimes several swarms in the same tree. In the foot-hills the honey, if they get any, is likely to be better, that from the alfalfa being fine. As nearly as I found out, the great honey section is in the southern part of the State.

On my way home I stopped to see friend Hayhurst, of Kansas City, and was very glad I did so. He has some of the finest bees I have yet seen, and he knows how to care for them. To prevent the queens from fighting, he cages each cell separately before putting into the nursery. It is, as Mr. H. says, a mistake to suppose queens just hatched will not destroy cells remaining, or each other, for they will so do if strong and vigorous. This has also been my experience. Who has a different report?

I arrived at home and found my bees in good condition for this time of year, and I hope so to keep them. CHAS. R. BINGHAM.

Edinburg, Ohio, Mar. 22, 1886.

WINTERING BEES UPSTAIRS IN A WARM ROOM.

Some time last season one R. F. Perry, of Clarkston, Mich., wrote me about purchasing some bees or queens of me, and incidentally dropped the remark that he never lost bees from wintering. In replying to his communication I asked him how he wintered. He replied that he wintered upstairs, with a stovepipe passing through the room. I was then very busy shipping bees and queens, and hadn't time to correspond further. His letter was laid by and almost forgotten until I saw friend Hutchinson's article in Jan. No., page 6, where the idea is advanced that the temperature of cellars may be kept even as high as 90°. Then I thought, "Why not put the bees upstairs where it is warm and dry?"

I again opened correspondence with friend Perry, and learned that for four winters he has kept bees in an upper room, through which a pipe passed from a stove below, where the family lived.

He prepares them thus: When cold weather is well settled in, the bees are quietly carried into the chamber; the covers are removed from the hives, and a folded blanket laid over the bees; the entrances left all open, the room kept absolutely dark, and as cold as possible, for six or eight days, until the bees get used to the jar of the house; then a fire is built below, and the room kept warm all the rest of the winter. Has anybody else ever tried this plan? Is it not much better than cold, damp cellars? S. C. PERRY.

Portland, Mich., March 11, 1886.

SUCCESSFUL WINTERING IN BOX HIVES; A FACT AGAINST UPWARD VENTILATION.

My father kept bees in Washington Co., N. Y., when I was but ten years old. They were kept in box hives. The hives were set up about one foot from the ground. The entrance was at the bottom of the hive, about one-half inch wide by four long. They stood on summer stands all winter, with no ventilation except at the entrance, and the top was sealed as tight as the bees could make it. I don't remember of ever losing a swarm in winter. Father moved to Lorain Co., Ohio, when I was 15 years old. I found a swarm on an apple-tree the second year. I put them in a box hive, and carried them home. They swarmed once that season, and both swarms wintered well. The next summer I cut two holes in the top of one of the hives, and put on two boxes of a capacity of about 5 lbs. each. These I took off in the fall, well filled. I laid a board over the top of the hive. In the spring the bees were dead, although they left a good supply of honey. The hole through the top of the hive was left open during the winter. A. ALLEN.

Tecumseh, Neb.

"CHAMPIONING" MR. HEDDON.

Its author may not have intended it, but the article on page 171 gives the impression that, in my review of Mr. Heddon's "separator record," I either read carelessly, or, if I found any thing upon the *opposite* side, I *suppressed* it. I did neither. My only fault, if fault it can be called, was in *not going back far enough*, although I went back twice as far as the editor said it was necessary. I went back *four* (not "*numerous*") years, while the quotations given, showing that Mr. Heddon was *once* opposed to separators, are from writings *five* years old. I have never "championed" any man, in the sense in which I have been accused of "championing" Mr. Heddon, and *never shall*. I have always fearlessly championed what I believed to be the *truth*, and shall continue to do so, even if in so doing I am frequently compelled to agree with Mr. Heddon, "or any other man." W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich., Mar., 1886.

QUIESCENCE IN WINTERING.

It has always been my aim to get the bees, while in their winter quarters, in that quiescent condition mentioned by friend Doolittle, page 212. When I can get them into that state, I always have good success, and the amount of honey consumed is remarkably small. With the experience of the past winter I have concluded that I can the most effectually accomplish it in the cellar, where, henceforth, I think the major part of my colonies will be wintered. CHRISTIAN WECKESSER.

Marshallville, Wayne Co., Ohio, Feb., 1886.

CEDAR HEDGE A GOOD WINDBREAK; HOW TO SET OUT.

A cedar hedge makes a good windbreak for bees in winter, and also a nice hedge around the houseyard or garden. It is raised as follows: Dig the trees and put them in a tub containing some water and dirt, so that the roots don't get dry, or else they will not grow; then plant them in a straight row two feet apart. Cultivate them the first two years; trim the new growth back occasionally. When they have the desired height, trim off the top. In four or five years you will have a nice green wall, so thick and tight that a bird could not get through. JOHN F. HOCKEMAYER.

Campbellton, Mo., Mar. 12, 1886.

A SUITABLE BEE-DRESS FOR A WOMAN.

I think the neatest and most convenient bee-dress for a lady consists of a linen ulster, which can be slipped on over any kind of a dress. For the head, I prefer a light straw hat, with a rim of medium width, to the edge of which is securely attached a veil of brussels net, extending clear around, in such a manner as to admit of its being drawn down over the face. This, with a handkerchief tied about the neck, completes my bee-dress. As for gloves, I leave them for those who can work in them. SARAH E. DUNCAN.

Lineville, Iowa.

REPORTS ENCOURAGING.

FROM 35 TO 50, AND 5000 LBS. OF HONEY; A GOOD REPORT FOR SWEET CLOVER.

WE commenced the season with 35 colonies, and increased to 50. We extracted 5000 lbs. of choice honey, and have been and are now selling at 20 cts. per lb. at retail. We are not selling much at wholesale. Wholesale prices are about 10 to 12½ per cent less. The honey was from alfalfa mostly; nearly all Colorado flowers furnish some honey, but nothing seems to yield every year like sweet clover. Alfalfa failed in 1884, but yielded largely in 1883 and in 1885. I use chaff hives; winter on summer stands, and last year was more profitable than any other business I struck. If 100 colonies would average as well as 50 or less, I guess I would take the 100. R. H. RHODES.

Arvada, Jefferson Co., Col., Feb. 10, 1886.

A FEW FACTS OF EXPERIENCE, FROM A LADY.

Friend Root:—We hereby hand in our fourth annual report for 1885. We commenced the season with 27 colonies; and although we worked most of the season against increase, we closed the season with 44 colonies and 827 lbs. extracted honey and 217 lbs. comb honey, and our bees all in good shape for winter. We wintered 28 colonies in the cellar and 6 in chaff hives on their summer stands. All came through in good condition. We weighed and placed them in the cellar Dec. 10, 1885. We took them out March 13th, and, weighing them again, found they had lost, on an average, 5 lbs. and 6 oz. per colony.

The season of 1885 was a peculiar one—cold and wet in the spring, and cold and wet during the honey-flow in September, which cut our crop short. Although not as good as some seasons, yet it was better than others, and we are well satisfied with the season's work. We have to work against a great many disadvantages in this locality, having no white clover or basswood; but for all that we have made money every season that we have kept bees. Nearly all who have tried the business here have failed, and given it up as unprofitable. "Doesn't pay," is the cry. Our success, though moderate, has not been through superior knowledge of bee-keeping, but to giving a strict attention to details, and doing a thing when it should be done, mixed with a good deal of enthusiasm and hard work. Had the others who have failed worked as hard as we, they probably would not have failed. Many times we have felt like giving up, as have all bee-keepers sometimes. I don't mean all, but some of them have been, and others yet will be, the worst-disgusted mortals that ever lived, and will almost wish they had never seen a bee. The dark clouds pass away, and we feel renewed strength because we have conquered, and rejoice thereat. During the past season we have formed a few opinions as follows:

That the Heddon method to prevent after-swarms has never failed with us, and is the best; that wide frames to procure surplus are as good as any. Last season our opinion was in favor of the Heddon case; our opinion is reversed this season; that there is little or no difference in the amount of honey gathered, whether bees are working on the L., Gallup, or our own size of frame, size 10×12¼, every thing being equal; that the Cyprian bees gather more honey than the Italians, but they are poor comb-builders; that hybrid Italian queens, crossed with German drones, produce better honey-gatherers than pure Italians, but perhaps no better than a pure Italian queen mated with a pure Italian drone of another strain; that we don't like clipped queens, but might change our opinion if our apiary ran up into the hundreds; that we shall have a good chance to test the merits of our five acres of alsike clover sown last season as a honey-plant, as nothing else yields honey at the time it blooms.

Rossville, Kan., Feb., 1886. **Mrs. M. F. Tatman.**

BEES DOING WELL—ONLY ONE COLONY LOST OUT OF 105.

My bees are doing well. I lost only one out of 105. I think we shall have swarms by April 1. My bees are all very strong, and have a large amount of brood. I think it will be advisable for me to extract from my upper stories, as they have whole frames of sealed honey. They are now bringing a great deal of pollen and some honey.

I think from the present indications that we are going to have the greatest honey-flow since 1882. I am getting a good many of my neighbors to quit the old log gums, and adopt in their stead the movable-frame hive. The bee-fever seems to be advancing to a very high point in this portion of the State. I think from this, if for no other cause, I can get them to improve their bees. **M. Simpson.**

Gatesville, Tex., March 16, 1886.

WINTERING NICELY.

I have 48 good strong healthy colonies of Italian bees in two-story chaff hives, all wintering well so far on the summer stands. They have plenty of stores to winter on. I fed each colony one dollar's worth of sugar last fall. I lost but one swarm, and the queen was a drone-layer, which was the result of losing it. We have had nice warm sunny days, so the bees would get a flight every now and then. From all appearances we may have a good summer for honey here this summer.

Lower Salem, O., Mar. 5, 1886. **Charles Haas.**

KEEPING A RECORD WITH THE BEES.

I went into winter quarters in 1884 with 29, and came out with one strong and 13 weak colonies. The strong one was the one to which I introduced the Italian queen I bought of you. She had more bees than three of the others put together, and I got 105 lbs. of comb honey from this one—as much as from all of the rest. In 1885 I increased to 38. I doubled up to 35, and sold one. I then went into winter quarters in 1885 with 34 in good condition. I have lost three from freezing. My bees had a good fly the 7th and 8th of February. I winter on summer stands. It was exceedingly cold here this winter. The mercury was 20 below zero.

Total receipts on bees - - - - - -	$53.00
Expense - - - - - - - - - - -	25.15
Net profits - - - - - - -	$27.85

I keep a record of all expenses and receipts, the same as dealing with my neighbors.

Cowden, Ill., Feb. 18, 1886. **A. W. Spracklen.**

LOST 4 OUT OF 15 COLONIES.

Bees are in good condition at this time; they are having a good fly to-day. I have lost 4 out of 15, fall count. I began the spring of 1885 with 5 weak colonies in old box hives; increased to 15 and took 140 lbs. of comb honey, principally from red clover. I hope to do better this season. **J. N. Davis.**

Moreland, Ind., Mar. 18, 1886.

2000 LBS. OF HONEY FROM 16 SWARMS TAKEN WITH A HOME-MADE EXTRACTOR.

We have had three or four frosts this winter, which reminds me that I have made no report yet for last season. I commenced last spring with 26 hives of bees, nearly all in old boxes, which I transferred to Simplicity hives. I made my own extractor and extracted 2000 lbs. of honey from 16 hives, and from the other 10 I got about 250 lbs. comb honey. I sold four stands, and have twenty-four to commence with this year. I received the saws you sent by mail, and was glad to know that you are so prompt in business as to correct the mistake at your own expense. I have never dealt with any one whom I would rather deal with than you, for I believe you to be honest.

Walter B. Fisher.

Uvalde, Texas, Jan. 3, 1886.

FROM 4 TO 9, AND 400 LBS. OF HONEY.

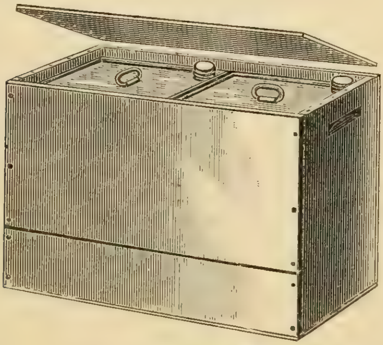
I started in the spring of 1885 with 4 colonies—3 strong, one weak; increased to 9, and took 400 lbs. of comb honey, nearly all from basswood.

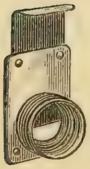
Georgetown, Iowa, March 9, 1886. **Ira Williams.**

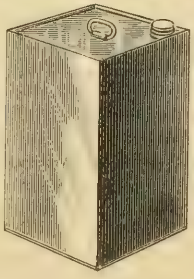
HOW SHALL WE PUT UP OUR EXTRACTED HONEY?

IRON-JACKET CANS DISCARDED.

THE package used for liquid honey by the friends in California is, at least for the most part, a square tin can, either soldered up tight or having a screw cap at the corner to pour out the contents, as shown below.







OUR NEW 58-LB. HONEY-CAN.

A square tin of itself would hardly be safe to ship by freight; but a stout box can be made to contain a single can, at an expense not to exceed 7 or 8 cts.; and where two cans are crated together, which is the usual way the friends in California do it, the outside protecting box can be furnished for an even 10 cts. The figures above explain the matter so fully, no further description will be necessary. The materials required for the can are two sheets of charcoal tin, 14 x 20, and two sheets 10 x 10. By reference to our price list you will find that the tin costs 12 cts. for the body, and about 8 cts. for the top and bottom; so the materials cost only about 20 cts. To make the can, you take the two larger sheets and lock them together so as to stand end to end. This gives you a sheet of tin about 14 x 40 inches. Square it up true and accurate, and lock the extreme ends together, making it a sort of oval-shaped can, without top or bottom. Bend it at right angles where the seams are, and then between the seams, and your can-body is done, except the top and bottom. Notch out the corners of your 10 x 10 pieces; fold the edges with a suitable folder, and they will slip on the can tight enough to solder. Put on a screw cap, as shown in the cut, and a handle made of stout wire, and your can is complete.

FRIEND T. P. ANDREWS' UNIVERSAL HONEY-GATE.

The above is shown in an enlarged view at the left, below the large cut. It is made of a piece of stout charcoal tin, 2½ x 3 inches. A piece of heavy leather is fastened by four rivets to this piece of tin. The leather is 2 x 3 inches, so that we have ¼ inch of the tin projecting on two sides. Fold this tin which projects, in such a way as to take in the tin slide, as shown in the cut. Before putting the leather on, we solder securely to this piece of tin the loose top of one of the above-mentioned screw caps belonging to the honey-cans. After it is soldered fast, with a suitable punch we cut a hole through both cap and tin. This gives us a honey-gate that will fit on any of our square honey-cans, so your grocer need have but one honey-gate, and he can attach it to his square cans as fast as he retails from them. Friend Andrews, the inventor of this honey-gate, writes as follows in regard to the whole apparatus:

SOME OF THE ADVANTAGES OF THIS PACKAGE OVER BARRELS AND KEGS.

This package has been used by myself and other bee-keepers here for the past two years, with great satisfaction. The case of 2 five-gallon cans cost 65 cts. each, with *cork* nozzle; 5 cts. more for *screw caps* like the one I sent you. They are made by E. T. Mason & Co., 247 Lake St., Chicago.

It costs less per gallon than the cheapest kegs; and no more, I think, than barrels when waxed.

The honey in these cans is sealed up *air tight*. It gets no bad taste from the packages. The cans are ready for use (can get them in three or four days). They do not *leak*. It makes a convenient package for the retail trade, with my honey-gate attached. If the honey becomes thick or granulated, it can be readily liquefied by setting the can on the stove, or in hot water. A case similar to this is largely used by the California bee-keepers.

Now in regard to the gate. You will see that it can be screwed on to the can in place of the cork-lined screw cap, which is to remain on the can till it is desirable to draw the honey. If, when the gate is screwed on tight, it is not right side up to draw from, it may be unscrewed a little, and a bit of string, or a small rubber band, put around the nozzle, and the gate screwed up again until it is right side up when tight. To make the honey run freely, a small hole must be pricked in the top of the can, in the corner furthest from the gate. If the gate should leak any, the can may be set on end when the gate is not in use. I have made a dozen or more of these gates, for the use of my customers. In making them I bought the caps—worth $2.00 per 100. I cut the tops of the caps out with a center-bit, the lip having been filed off. The corresponding hole in the tin was also cut with the same bit. I do not intend to manufacture them for sale. With heavy tin, and leather of even thickness, I think they can be made tight enough so as not to leak under as low a pressure as they would be subjected to on a five-gallon can; and if the gate should leak a little it would not be a very serious objection, as the can may be easily set on end.

To make the slide work easier, I would suggest that it be made at least ⅛ of an inch narrower than the ways in which it slides. T. P. ANDREWS.

Farina, Fayette Co., Ill., March 1, 1886.

In regard to prices of the above, we can furnish a pair of the cans in a box, screw caps and all, for 90 cts. each; in lots of ten, 80 cts. each; and in lots of 100, 70 cts. each, the same as they are offered in Chicago. The little honey-gates will, for the present, be 15 cts. each; $1.25 for 10, or $10.00 per 100. One honey-gate will answer for 100 cans or more, as you will observe. The air-hole is easily stopped by means of a drop of solder when the can is to be used again for shipping. These cans hold exactly 58 lbs., or 5 gallons, like the old iron jackets. The price of a can crated singly is 50 cts. They will, as a general rule, be shipped in pairs. A stick, one inch square, is laid over the tops of the cans, before the cover is nailed.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, APRIL 1, 1886.

Though a host should encamp against me, my heart shall not fear.—PSALM 27: 3.

WE have to-day (April 1), 5240 subscribers.

ALSIKE CLOVER.

ON immediate orders we can furnish alsike clover at $8.00 per bushel. If less than a bushel is wanted, the price will be $4.25 per half-bushel; $2.25 per peck, or 18 cts. per lb.

BLUEBERRY-PLANTS.

SINCE the letters were published in regard to these, on another page, more of a similar import have come in. If Mr. Delos Staples wants to refund the money he has received for these dried twigs, he may regain his good standing, but nothing else will answer.

WINTERING BEES IN A WARM ROOM.

THE plan of wintering, on page 271, I think is a mistake. In the first place, it is a very difficult matter indeed to make an upper room absolutely dark; and after you have got it absolutely dark, my experience has been that the bees will go out when the temperature gets up to 60 or 70°. Although there may be occasions when very strong colonies would stay in their hives, as a rule I am sure it would not work.

MAPLE SUGAR AND SYRUP.

WE have now a very fine lot of new maple sugar, at 7, 8, 9, and 10 cts. per lb., according to quality. By the barrel of 520 lbs., one cent less. For the convenience of those who want a smaller package than a gallon, of the new evaporated maple molasses, we have the whole crop made by neighbor H., put up in half-gallon cans at 60 cts. per can. Neighbor H. has already, this 29th day of March, 500 maple-trees on his own grounds, dropping the crystal sap into new tin pails, and one of the most modern evaporators is to-day boiling it down into this maple syrup. The half-gallon cans are filled with the hot syrup in the sugar-bush, and a screw cap is so arranged as to seal them hermetically while hot, so they may reach our customers in as nice shape as the best canned fruit. Ten cans, 55 cts. each; 100, 50 cts. each.

KIND WORDS OF SYMPATHY SINCE THE LOSS OF OUR WAREHOUSE.

I TAKE this opportunity to thank the friends who have written such very kind letters in regard to our loss by fire, and to express my regret that it is impossible for me to answer them individually, in the kind way their letters seem to demand. If it is indeed true, that the fire was the work of an enemy, God's promise seems to begin to be verified already. "Surely the wrath of man shall praise thee."

AN OMISSION.

THE advertisements of W. H. Osborne, Chardon, O., and C. Weckesser, Marshallville, O., should have appeared in our last issue, as they do in this. In writing about this, friend Osborne makes the following strong point:

> "Perhaps it has done no damage to me, but people seem to have more confidence in regular advertisements."

Those who complain about not receiving a reply from an advertisement inserted but once, would do well to remember this.

PERFORATED ZINC OF OUR OWN MANUFACTURE.

AFTER some months of diligent toil we have builded a huge press, to be run by the engine, capable of perforating sheets of zinc about as fast as a good cow will chew up cabbage-leaves. The perforations are exactly like those made in England, which seem to give the best satisfaction, as a general thing. Our machine, however, perforates sheets only 28 inches wide by 8 feet long, making 18⅔ square feet in a sheet. Prices will be 10 cts. per square foot, or $1.50 for a whole sheet, as above. Two sheets, 5 per cent off; 10 or more sheets, 10 per cent off. Samples mailed free on application. The above low prices are because we do not have to pay duties to Canada, nor England either.

OUR NEIGHBORS OF THE BEE-KEEPERS' MAGAZINE.

A NEW price list from the above firm (Aspinwall & Treadwell, Barrytown on the Hudson) is at hand, and it certainly is a novelty in some respects. The picture of the factory, store, and shipping-house on the banks of the Hudson is quite home-like, and a description of their factory at the close of their 30-page catalogue has so much of the right ring in it that I want to make a brief extract. After describing the different buildings, we read:

> The executive department is seen on the right. There, surrounded on all sides by enough paper to make a junk-dealer happy, may be found your humble servants, pegging away at their correspondence, always happy to be honored by either a letter or order, however small, from you.

May much prosperity and many years of usefulness reward the new firm.

WRITING LENGTHY ARTICLES.

FRIENDS, something must be done to enable us to condense our ideas. It is not fair nor right to let one man occupy a great portion of the space in any issue, to the exclusion of half a dozen others. Let me suggest a little. Write more about your actual experience, and less about your opinions. For instance, we get long articles about reversible frames, from somebody who has never used them, and who opens up by saying he wouldn't have them in his apiary. Do we want such articles? Just at present, I do not believe that we do. The same will apply, a good deal of it, to the Heddon hive. What we want now is facts from those who have been working with them. Let friend Heddon send some hives to the friends in the South, where their bees are working, and in two weeks' time they can give us facts from experience. Please consider that we are a great body, and we want to hear from a great many. Cut your articles off at both ends, and give us the meat.

LOW PRICE OF HONEY.

SHALL WE RETAIL IT AT HOME, OR SEND IT TO THE CITY?

FRIEND ROOT:—In your comments upon my article in GLEANINGS, page 132, you say that you have heard of no one selling his honey for 5 cts. per lb. If you turn to the market reports you will find the quotations from 6 to 8 cts. in Boston. Some quotations say no demand for extracted honey; comb honey all the way from 10 to 15; mostly centers on 12½. My crop of honey was 8000 lbs. I have been working off 3000 in the home market; 5000 I shipped to different parties in New York. One lot was sold for 6 cts. per lb. After paying freightage, commission, and taking out cost of barrels, I find the honey nets me 5 cts. per lb. I wrote to friend Muth, our reliable cash buyer, early in the winter, for his prices for extracted basswood honey. He would give 6 cts. but I must deliver it. By the time it was put down in Cincinnati the freightage and cost of barrels would leave me but about 5 cts. per lb.

In relation to working up the home market, I have the same experience as Mr. Todd, of Philadelphia, only in a less degree. He says, "I have tried to develop a honey business here; and with a million people I can only say it is a heart-breaking job." Perhaps it is because it is Philadelphia. I have wondered many times why we never had quotations, or any indications of a honey market at all, in so large a city as Philadelphia.

Every bee-keeper who has had any degree of success has more or less competition. Other bee-keepers in his own and adjoining towns enter the markets with him; and where his crop is in tons he can not work it all off. It has been recommended as an excellent plan, to place honey on sale in stores, far and near, and visit the stores often enough to keep up the supply. The honey will have to be put up in small packages, and sold at a low price, with a commission to the grocer, which, added to the expense of keeping a team on the road, will reduce your profits again to 5 cts., or so near it that you will wish you had got rid of all the fuss and worry by shipping your honey in bulk to some reliable commission house. To show you how rapidly honey will sell when left in the show windows of a grocery, I give you the following: Oct. 11th I left 16 pails of honey with a reliable grocer in a thriving manufacturing village of about 10,000 population. The honey was put up in pails, nicely labeled. I left—

Four 5-lb. pails at 60 cts. each, to be sold for 75.
Four 2½-lb. " " 32 " " " " " " 40.
Four 1½-lb. " " 17 " " " " " " 25.
Four 1-lb. " " 12 " " " " " " 18.

My price per pail would average me 10 cts. per lb.; then adding the price of the pail gave me my prices. The last column gives the prices sold at, and the difference between that and the next column gives the grocer's profits. In six weeks after leaving this small lot I called and found a few of the smaller pails sold. A few days ago I called again and found all sold but two 5-lb. pails. The grocer thought he would want more of the small pails, but he would let me know by postal. The postal has not arrived.

At the same time I left some comb honey, and that was as slow sale as extracted. In another village I have a cash purchaser for small lots put up in the Jones pails. His sales have been a little better, but not enough to give much enthusiasm.

There is one peculiarity about the sale of honey that I presume every bee-keeper has noticed. You may have an excellent customer for your honey for a time, when all of a sudden he stops short off; and when you inquire the reason he tells you that the children eat so much of it they all get sick, and can't bear the sight of it on the table, "and wife and I don't like it so well as we did." Eating honey, with some people, is like eating quails. You soon get satisfied, and no more goes down. In relation to comb honey at 10 cts. per lb., I was informed that a large producer sold his honey at so near 10 cts. that, after taking out expenses of shipping, etc., I was safe in saying 10 cts.; furthermore, dealers in New York quoted me comb honey at 12½ cts. Now take out commission, freightage, and breakage, and how much are you above 10 cts.?

These low prices are facts we have got to face. You say you would give 5 cts. for any quantity. Perhaps you are so fortunate as to receive cash orders from remote points, and can afford to sell your honey thus; but we haven't all got that wide reputation, and we find it costs money to get it.

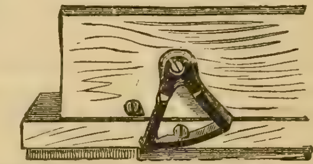
Hartford, N. Y., Feb. 24, 1886. J. H. MARTIN.

Your facts are somewhat discouraging, friend M.; but even if facts are stubborn things, I suppose it is good to have them. Will friends France and Coggshall, who make honey-extracting a business on a large scale, tell us if their honey does not net them more than 5 cts.? When I spoke of the price 5 cts., I supposed you meant that you sold it at that figure, and were obliged to furnish barrels, and deliver it besides. Probably the grocer in that town of 10,000 inhabitants sold only a very small part of the honey retailed in that town; and if other grocers sold as much as he did, it might not be such a very bad showing, after all. It seems to me that the fact that he sold all except two of the largest pails would be a fair indication that it would pay to give him another supply.

THE VANDEUSEN CLASP,

FOR FASTENING STORIES TOGETHER, FOR FASTENING MOVABLE BOTTOM-BOARDS, ETC.

BOTTOM-BOARDS nailed fast, or bottom boards loose from the hive, have been discussed and argued over until the question has been dropped by mutual consent—one party declaring they never wanted another loose bottom-board in the apiary, and almost as many declaring they never want a hive with the bottom-board nailed fast. To accommodate both parties, one of our veteran bee-friends, Mr. C. C. Vandeusen, of Sprout Brook, N. Y., some years ago invented the device figured below.



THE VANDEUSEN CLASP AS IT APPEARS ATTACHED TO A HIVE, CLASPING THE BOTTOM-BOARD.

Little hooks, made of malleable iron, have been used for this purpose, so arranged as to catch on two screws; but these are objectionable, because there is not sufficient power to them, unless made very heavy, and also because they are not conveniently hooked or unhooked when you are in a hurry. The device shown above possesses great strength because the point of the hook is held by a projecting arm of the iron. This projecting arm is arched over so it can not hit against the screw-head. This arch also serves as a projecton to strike against when you wish to draw the clasp up tighter, or to release it. On the opposite corner a similar projection answers the same purpose. If you can not get hold of a stone or piece of brick to drive them off or on, you can almost always make your boot-heel hit one projection or the other; and the machine is so stout that there is no danger of breaking it. Since iron has come down in price, we are now enabled to sell these clasps for 2 cts. each, with a couple of strong screws included. In lots of ten, 18 cts.; or 100, $1.50. If wanted by mail, the postage will be 2 cts. each extra. Where you want 1000 clasps, without screws, we can furnish them for an even $10.00, or at a cost of only 1 cent each.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.

N. C. MITCHELL, AGAIN.

FRIEND ROOT:—Do you know any thing about the National Bee-way Co., with N. C. Mitchell for manager? He gave a lecture here the other evening, and wants to introduce his house here. It is patented. He wants to sell rights to use, etc. I should like information.

Plymouth, Richland Co., O. JOHN EDWIN.

Friend E., you are evidently not conversant with our back volumes, or you would have known that N. C. Mitchell has been advertised as a fraud and swindler for years together. For some time past, however, we have heard little about him; but of late I have had several notices that he was at work around Cincinnati. Do not, under any circumstances, pay him any money. He is not in accordance with modern bee-keeping, and any money sent to him, or given to him, is lost. Some years ago I told the friends that it was like pouring water into a tunnel. The money is gone as soon as it is out of your hands, and you have nothing in the way of an equivalent, and no means of getting it back.

BLUEBERRY-PLANTS AND DELOS STAPLES.

I bought 500 blueberry-plants of D. Staples, Michigan, last year, and have none left to tell the tale, although carefully set. The plants looked like huckleberry-bushes pulled up in some swamp, that were three or four years old, and from 4 in. to 18 in. high. I think he is a fraud. C. A. HATCH.

Ithaca, Wis., Mar. 22, 1886.

In reply to your inquiries about blueberry-plants, we would say that we purchased one dozen from Delos Staples. They were sent by mail, and when received they were as dry as last year's pea-brush. They had neither oiled paper nor moss around them, but were wrapped in a piece of old newspaper. We made up our minds that he belonged to that great army of frauds our country is cursed with, and did not care to waste a postage-stamp writing about the matter. A. H. & G. B. WORTHEN.

Warsaw, Ill., March 20, 1886.

At the time Mr. Staples first advertised blueberry-plants in our journal, we ordered some for our own use. They were simply dry sticks, with scarcely any thing on them that could be called a root. I wrote to him, remonstrating. He said they would grow, even if they had no roots. By great care and sufficient watering, we got a little start on a few of the sticks; but, with all our care, none of them lived. In the first place, it is preposterous to call *dry brush* "plants." The reason I asked for reports from others was because I wanted to see whether that was his fashion of doing business. The above letters, it seems, settle the matter sufficiently. If the friends will tell us what they paid for their plants, we will pay them back their money; and, inasmuch as Mr. Staples has advertised blueberry-plants quite extensively through all of our agricultural papers, I would ask that he be as widely advertised as a humbug and swindler. Several of our agricultural papers have already published him as above, and that is what called my attention to the matter. I very much *doubt* whether blueberry-plants will grow on *any* soil, as he asserts, even if good strong plants with roots were furnished. Will our nursery friends please say if I am not right?

THE GREAT "ACME PENETRATIVE," FOR BURNING STUMPS, ONCE MORE.

We copy the following from the *American Agriculturist:*

> Subscribers are receiving a glowing circular printed on blue paper, describing the virtues of the "Great Acme Penetrative," of New Carlisle, Ohio. The circular sets forth, that "this penetrative actually burns stumps," and "good, honest agents are wanted." Then follows a long list of indorsements from people who have used the Great Acme Penetrative; but, unfortunately for Messrs F. E. Fross & Co., of New Carlisle, who claim to manufacture this penetrative, they have forgotton to give the postoffice address of a single individual who indorses their combustible.

The friends will notice that it is much in line with what we said on page 44, in our issue for Jan. 15, 1886. This F. E. Fross has also been offering seed-corn, possessing remarkable virtues. Many of our agricultural papers have advertised the corn. Fross claims that he offers the seed at a price that would pay only for the packing and postage, in his zeal to have farmers test it throughout the different parts of the country; but complaints have become so numerous, saying that that he never sent any corn at all, that the editors receiving his advertisements have been obliged to apologize for them. We have private advices, saying that the corn he has advertised so extensively was purchased by him out of the farmers' cribs, anywhere he could find it in his own vicinity. Will our agricultural friends please pass him around until he discovers that the way of the transgressor is hard?

FOR SALE CHEAP.

Having bought an interest in A. F. Stauffer's supply establishment, to which I will devote my entire time, I will sell my apiary of

50 Colonies of Hybrid Bees, Cheap.

For further particulars, address
7-9db J. G. SEIDEL, Sterling, Illinois.

DON'T READ THIS
UNLESS YOU WANT TO BUY BEES

AT ✣ REDUCED ✣ PRICES. ✣ Address
CHARLIE W. BRADISH,
7-8d **Greig, Lewis Co., N. Y.**

WANTED. A good reliable man who understands bees, to take care of 100 colonies. For further particulars, inquire by postal of
7d ROBERT BLACKLOCK, Gagerville, Carter Co., Ky.

FOUNDATION, 6 SHEETS FOR L. FRAME, 35C PER LB. W. T. LYONS, Decherd, Tenn.

HELP FOR THE SUFFERERS.

400 lbs. of black bees to sell at $1.00 per lb. During April and May, black queens, 20c, and hybrids, 40c, to go with them. Safe arrival and satisfaction guaranteed. MRS. J. ATCHLEY,
7-8d Lampasas, Texas.

ALSIKE. Clean new seed, $7.00 per bushel, bags free; discount on large orders.
Specialties. Raspberry and Strawberry plants, Italian queens, B. L. fowls and eggs. I will not be undersold. C. M. GOODSPEED,
7d Thorn Hill, N. Y.

6 STOCKS OF HYBRID BEES, $5.00 EACH. Rose - comb White Leghorn eggs, 15 for $1.00; 30 for $1.60; 45 for $2.00. C. G. FENN, Washington, Conn. 7d

WANTED. Fifty swarms of bees on shares here. Address A. L. MILLER,
7d West Toledo, Ohio.

FOR SALE. Hybrid bees, good colonies in Simplicity hives, with 9 frames, $4.00; delivered at R. R. station.
7d MISS MABEL FENN, Tallmadge, Ohio.

Eggs, Plymouth Rock, Hawkins' strain, $1.00 per setting. Langshan (Cradd) $1.00; B. B. Red game (imported stock), $3.00. Also Canaries and pets, nicely mounted. Sent by mail prepaid, with 50 cents as guarantee. JOHNSON & CO.,
7d Taxidermists, Allenwood, Union Co., Pa.

FOR SALE. 25 COLONIES OF HYBRID BEES in 8-frame Simplicity hives; frames mostly all wired. Will take $5.00 per colony if ordered now. Will deliver at express office May 1st. Address A. B. JOHNSON,
7tfdb Clarkton, Bladen Co., N. C.

50 Colonies of
Italian Bees For Sale,

In shipping-box, 7 L. frames, tested queen, per colony	$6 00
4-frame nucleus, tested queen	3 00
" " untested queen	2 50

Safe arrival guaranteed.
7-10db **TOM PHELPS, Sonora, Ky.**

A NICE LOT OF **GOLDFISH** now ready for sale. Order from W. L. McINTIRE,
7tfdb Mt. Vernon, Ohio.

100 COLONIES OF ITALIANS
AT BED-ROCK PRICES.

Also 2000 new wired combs at 10½ cts. each, all first-class. Satisfaction guaranteed.
7-8d RICHARD HYDE, Alderly, Wis.

IMPORTED
ITALIAN QUEENS.

We shall receive 100 Queens from Italy in May.
MUCCI & BRO.,
7-8d **LEXINGTON, KY.**

BEES BY THE POUND,
AND UNTESTED QUEENS A SPECIALTY.

One pound of Bees, $1.00. Queens, $1.00 each. Express charges prepaid on orders of 10 lbs., to any part of the United States except California and Oregon. Write for discount on large orders. Orders from dealers for a weekly delivery of queens solicited. Safe arrival and satisfaction guaranteed. Make money orders, drafts, etc. payable at Baton Rouge, La. JOS. BYRNE,
7tfd WARD'S CREEK, EAST BATON ROUGE PAR., LA.

EARLY

QUEENS FROM THE SOUTH

ITALIAN

In April, $1 25 each; $13 00 per dozen.
" May 1 15 " 12 00 " "
" June 1 00 " 10 00 " "
Tested, $2.50, in April and May.

Safe arrival and satisfaction guaranteed. Special rates to dealers. W. J. ELLISON,
7-9 d STATEBURG, SUMTER CO., S. C.

ITALIAN QUEENS, untested, May and June, $1.00; six for $5.00; after July 1st, 85c each; six, $4.50; 2-fr. nucleus, untested queen, June, $2.75; after July 1, $2.25. Send for price list of bees by the pound, fdn., etc. JOHN NEBEL & SON, High Hill, Mo.
7-12db

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—To exchange or sell a few sittings of Mammoth Bronze turkey eggs, $400 per 13; Partridge Cochin, $2.00 per 13. Also 20 swarms of bees in chaff hives, or exchange for beeswax at 25c per lb. See ad. March 15. 7d
L. GORTON, Salem, Washtenaw Co., Mich.

WANTED.—To exchange iron shafting, nearly new, 7½ feet long by 1⅝ inches., with 2 collars and 3 pullies, 8, 10, and 16 inch; also 3 four-inch boxes, babbitted to fit shaft; one shaft 2 ft. 9 in. long by 1⅞ in., with 10-inch crank arm, and 26-in. pully with 2 six-inch boxes, babbitted to fit shaft, for Italian queens in June, or offers. 7d
F. D. WOOLVER, Munnsville, Mad. Co., N. Y.

WANTED.—To exchange Brown Leghorn eggs, for hatching, for light comb foundation. 7-9d
C. M. GOODSPEED, Thorn Hill, N. Y.

WANTED.—To exchange bees and queens for thoroughbred poultry, P. China and Chester W. Pigs, Simplicity and chaff hives, etc. Address
7-9d JNO. W. MARTIN,
Greenwood Depot, Alb. Co., Va.

WANTED. — To exchange apple, peach, pear, cherry, and plum trees, small evergreens, grapevines, raspberry, blackberry, and strawberry plants, flowering shrubs, vines, etc.; also a lot of Simplicity hives in the flat, or made up, with frames complete. I will exchange for bees, beeswax, section boxes, a Barnes foot-power saw, etc. 7d
D. G. EDMISTON, Nurseryman,
Adrian, Lenawee Co., Mich.

WANTED.— To exchange Simplicity hives or shipping and retailing cases for comb-fdn. machine, G. A. FARRAND,
7d Rockport, Cuyahoga Co., O.

WANTED.—To exchange bees for a Barnes saw, foundation-mill, or Light Brahma fowls; or I will sell bees by the pound; also queens in season.
James P. Sterritt,
5-6-7-8d Sheakleyville, Mercer Co., Pa.

WANTED.—To exchange new Novice honey-extractors for A. and L. frames; will exchange for a bone-grinder, or good books, or any thing useful. Geo. W. Baker, Milton, Ind. 3-5-7-9-11-13d

WANTED.—To exchange or sell. *Eggs for hatching*, from 3 varieties of high-class fowls, selected stock, costing from $12 to $20 per pair. Brown Leghorns, Silver-Spangled Hamburgs, and Plymouth Rocks. Eggs, per setting of 13, $2.00. Safe delivery and a fair hatch guaranteed. (Will exchange for beeswax delivered here at 25c per lb.) Circulars of bees and poultry free. Five settings of Brown Leghorn eggs for $5. Address
6tfdb A. H. Duff, Creighton, Guern. Co., O.

WANTED.—To exchange eggs from standard pedigreed and registered White and Brown Leghorns of the celebrated Smith and Bonney strains, for bees, queens, and supplies.
6-7d L. J. McNaughton, Chardon, Geauga Co., O.

WANTED.—To exchange foundation for wax.
59db B. Chase, Earlville, Madison Co., N. Y.

WANTED.—To exchange nursery stock, especially evergreens, for Italian bees, queens, and two-frame nucleus with Italian bees and queen.
678d R. A. Lewis, Cherokee, Iowa.

WANTED.—To exchange. I have a complete printing-office, consisting of 20 fonts of general job type, nearly new, some never used; 18 lbs. brevier, for circular work, all in job cases and cabinet; one Cottage hand cylinder-press, 6x10 chase, one Novelty press, 10x14 chase; composing-stick, rules, leads, etc. Cost over $200. I will take fdn., sections, cash, or other goods. Make an offer.
6tfdb E. Kretchmer, Coburg, Iowa.

WYANDOTTE and Houdan cockerels; good birds at low prices, to close out surplus; also one *White Wyandotte* cockerel; or I will exchange for white extracted honey. Eggs for hatching, $2.50 and $1.50 per 13. J. Evans,
6-7 Box 89, Schaghticoke, Rens. Co., N. Y.

WANTED.—To exchange, Simplicity or other hives for good section or extracted honey. Will sell hives (in the flat) cheap for cash, or will take one-third pay in full colonies of bees, or poultry. Hives in any quantity to suit customers, up to a car-load per day. G. A. Farrand,
3tfdb Rockport, Cuy. Co., Ohio.

WANTED.—To exchange Italian bees, brood, and queens, for fdn., beeswax, type-writer, or any thing having a standard market value. 6tfdb
Thomas Horn, Box 691, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange white-poplar sections, sandpapered on both sides, or any kind of bee-keepers' supplies, for comb or extracted honey. Send 5c. for sample section; 50-page circular free.
6-7d J. B. Mason & Sons,
Mechanic Falls, Androscoggin Co., Me.

WANTED.—To exchange one W. Moore & Co.'s double-barreled breach-loading shot-gun (rebounding-bar locks, good as new), and one silver hunting-case watch, nearly new (Columbus Watch Mfg. Co.'s make) for foot-power saw, bee-keepers' supplies, or choice poultry or Italian bees.
6tfdb J. A. Bucklew, Clarks, Ohio.

WANTED.—To exchange for a farm, or sell my place, consisting of 7½ acres of ground in the town of Lewisville, Ind. A small dwelling, poultry-houses, stable, and an everlasting gravel-bank, which affords about 3000 loads of gravel every year, which sells readily at from 10 to 15 cts. per load. The place is in a good honey locality, and good shipping facilities. Apiary slopes to the south and east; is surrounded on the north and west by a tight plank fence, about 7 ft. high. Apiary is set in grapevines. I will give five years' time, if sold. Direct all communications to
3-5-7d Geo. W. Baker, Milton, Ind.

WANTED.—To exchange apiarian supplies at any time, or nuclei in June, for extracted honey, extractor, or foundation-mill. Circulars free.
67d C. P. Bish, Petrolia, Butler Co., Pa.

WANTED.—To exchange S. C. Brown Leghorn eggs or P. Rocks of pure breed for Pekin Duck eggs or other eggs of pure-bred fowls; also for sale, $1.00 for 15, 36 for $2.00. David Lucas, Jewett, O.

WANTED.—To sell or exchange, farm, 180 acres, good buildings, good sandy soil; also latest improved Steam Thrashing-machine. Either or both at a bargain. Address J. A. Osbun & Son,
7tfdb Spring Bluff, Adams Co., Wis.

WANTED.—To exchange for bees, or to sell, 15,000 Cuthbert raspberry-plants ar 75 cents per 100, $5.00 per 1000. They are nice plants, true to name. Remit by reg. letter. Address
7d P. D. Miller, Grapeville, Westm'd Co., Pa.

WANTED.—To exchange 12 Brown Leghorn pullets, 10 Plymouth Rock pullets, 1 trio S. S. Hamburgs, 1 Wyandotte cockerel, eggs from P. Rocks, Wyandottes, Light Brahmas, S. S. Hamburgs, Brown or White Leghorns, for Barnes foot-power buzz-saw, Novice honey-extractor, and saw-mandrel. Cash or offers. Adolphus Newton,
7d Plymouth, Chenango Co., N.Y.

WANTED.—To exchange Carniolan and Italian queens or bees, for pure-bred Brown Leghorn (Bonney's Strain), and Wyandotte eggs, for hatching. Send for circular. Chas. D. Duvall,
7tfdb Spencerville, Mont. Co., Md.

WANTED.—To exchange about 50 or 60 good Plymouth Rock and Light-Brahma fowls for apiarian supplies, or 9 hens and one cockerel for $5.00, cash preferred. Julius Johannsen,
7d Port Clinton, Ottawa Co., Ohio.

WANTED.—To exchange pure Italian queens for beeswax at 28c per lb. Queens, select, $3.00; warranted, $1.50. Ship wax by freight to Barrytown, N. Y. Cornelius Bros.,
7 11 db LaFayetteville, Dutchess Co., N. Y.

WANTED.—To exchange 800 empty combs (nearly all wired fdn.), L. or Simplicity size, and 100 Simplicity hives (50 covers, 50 bottom-boards (all well painted, for basswood or white-clover honey, to be delivered next fall, combs and hives ready to ship now. Write for particulars.
E. T. Flanagan,
7 8d Box 995, Belleville, St. Clair Co., Ill.
P. S.—Will exchange 200 lbs. sweet-clover seed for honey or raspberry-plants.

WANTED.—To sell or exchange, pure S. C. Brown Leghorn eggs at 75 cents per 13, for beeswax, or books of poetry or history.
7-8d Mrs. Alice Bright, Mazeppa, Minn.

WANTED.—To exchange 13 Plymouth-Rock eggs for 75 cts. in cash; securely packed, and warranted pure. Orders filled at once. 7d
MRS. C. E. HATCH, Kentland, Newton Co., Ind.

WANTED.—To sell or exchange Hoags' hand-planter for corn, beans, etc. @ $2.50 cash, or $3.00 in trade. Satisfaction guaranteed, or money refunded. S. hives in the flat taken.
7d Henry L. Weiss,
Berkley Springs, Morgan Co., W. Va.

WANTED.—To exchange Crescent, Wilson, and Sucker State strawberry-plants for Italian queens, Wyandotte fowls, or eggs. Address
7d M. D. Hewitt, Farina, Fayette Co., Ill.

WANTED.—To sell cheap, or exchange, a 5×7-inch printing-press, type, etc., for early nuclei, queens, or full colonies. Write at once, as it is in my way, and I am anxious to dispose of it.
7d C. Weckesser, Marshallville, Wayne Co., O.

WANTED.—To exchange, rabbits or Wyandotte fowls, or their eggs, for Gregg raspberry-plants. A. A. Fradenburg,
7d Port Washington, O.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 1tfd
*S. F. Newman, Norwalk, Huron Co., O. 1tfd
*Wm. Ballantine, Mansfield, Rich. Co., O. 1tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 23tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala. 1tfd
*S. C. Perry, Portland, Ionia Co., Mich. 23tfd
*E. Kretchmer, Coburg, Mont. Co., Iowa. 23tfd
D. McKenzie, Camp Parapet, Jeff. Parish, La. 1tfd
Ira D. Alderman, Taylor's Bridge, Samp. Co., N.C. 1tfd
G. F. Smith, Bald Mount, Lack'a Co., Pa, 23tfd
*Jos. Byrne, Baton Rouge, Lock Box 5, East Baton Rouge Par., La. 23tfd
J. W. Winder, Carrollton, Jeff. Par., New Orleans, La. 3tfd
*E. Burke, Vincennes, Knox Co., Ind. 3-1
Richard H. Bailey, Ausable Forks, Essex Co., N. Y. 5-15
S. M. Darrah, Chenoa, McLean Co., Ill. 7-17d
S. H. Hutchinson & Son, Claremont, Surry Co., Va. 7-17d
N. E. Cottrell, Burdick, Porter Co., Ind. 7-17d

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Who agree to make such hives, and at the prices named, as those described on our circular.

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P. L. Viallon, Bayou Goula, Iberville Par., La. 1tfd
C. W. Costellow, Waterboro, York Co., Me. 1-23
Kennedy & Leahy, Higginsville, Laf. Co., Mo. 23tfd
E. Kretchmer, Coburg, Montgomery Co., Ia. 23tfd
S. D. Buell, Union City, Branch Co., Mich. 5-7-9
C. P. Bish, Petrolia, Butler Co., Pa.

BEES IN IOWA. — SEE FOSTER'S — **ADVERTISEMENT.**

TESTED QUEENS, $2.00; untested, $1.00. Wax-extractor, $3.00. Other supplies. Send for circular.
OSCAR F. BLEDSOE, Union Apiary.
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PEKIN DUCK EGGS, 10 for $1.00. } Sent by express.
PLYMOUTH-ROCK EGGS, 12 for 75c. }
7-10db C. L. DAVIDSON, FLEMINGTON, W. VA.

FOR SALE. ITALIAN AND CYPRIAN BEES and Queens (in any quantity). Extractors, Bee-Books, etc. Address 6tfdb
OTTO KLEINOW, Apiarist, DETROIT, MICH. (Opp. Ft. Wayne Gate.)

SAVE FREIGHT & MONEY by ordering your Apiarian Supplies from L. J. TRIPP.
7-8d Circular Free. KALAMAZOO, MICH.

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Untested queens, each,	$1 00
“ “ per five	4 00
“ “ per ten	7 50
“ “ per 20	14 00
Untested queens, reared by natural swarming, each	1 50
per five	6 25
per ten	11 00
per twenty	20 00
Tested queens, each	2 00
“ “ per five	7 00
Tested queens by natural swarming, each	3 00
Tested queens, by natural swarming, per five	10 00
“ “ 1885 rearing, sent in May or after, each	5 00
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Circular free, giving full particulars regarding each class of queens. Address

G. M. DOOLITTLE,
7-13 **Borodino, Onondaga Co., N. Y.**

ALSIKE CLOVER SEED

OF OUR OWN GROWTH, PURE AND CLEAN,
AT 13 CTS. PER POUND, BAG INCLUDED,
in orders of 30 lbs. or more.
Send money orders on Fort Plain, N. Y. Address
WILL C. HALL,
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The right to manufacture and sell the STANLEY AUTOMATIC REVERSING HONEY-EXTRACTOR for the States of Wisconsin, Illinois, Kentucky, Tennessee, Mississippi, Alabama, and all States and Territories west of the Mississippi River, except California. Will sell all or part of above-named territory. For prices, address

7-8d **J. E. STANLEY, Wichita, Kansas.**

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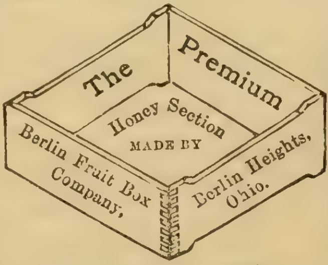
Dakota Red, per peck, 50 cents; bushel, $1.50. White Star, Clark's No. 1, Jordon's Prolific, Watson's Seedling, and Early Mayflower; peck of any one variety, 40 cents; bushel, $1.25. Sacks free. Under ordinary cultivation I grew over 55 bushels of Dakota Red from 49 lbs. seed. Descriptive circular free.
O. H. HYATT,
7d Shenandoah, Iowa.



To all who wish to use the best honey-sections, V-groove, and which fold without breakage, we say, *try ours*. Prices reasonable, and liberal discount on large orders. Send for prices of both apiarian supplies and fruit-boxes. Address as above.

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EARLY BEES AND QUEENS FOR SALE.

I can ship Colonies, Bees by the pound, and Queens, early in spring. Prices on application. Address
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COMB FOUNDATION. Headquarters in CANADA. Four first premiums in two years. Commencing our fourth year without one complaint. A. I. Root's Simplicity hives and supplies. Circular free.
7d WILL ELLIS, St. Davids, Ont.

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The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

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4-3db

SYRIAN AND ITALIAN QUEENS,

Before June 15, tested, $2.50 each; after, $2.00 each. Untested, before June 15, $1.00 each; after, single queen, $1.00; six for $5.00; twelve for $9.00.
6tfdb **ISRAEL GOOD, Sparta, Tenn.**

Italian Queens sent by Mail.

Untested queens from imported mother, April, $1.25; May, June, and July, $1.00. After April, per half-dozen, $5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

C. W. Phelps & Co's Foundation Factory.

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HONEST SEEDS at HONEST PRICES.

☞ DIRECT FROM THE GROWER. ☜

Strawberry Tomato, or Ground Cherry, true seed,	.10
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☞ SPECIAL INTRODUCTION BOX of seeds for Family Garden; viz., 25 Packets well filled with the best seeds, mailed for only 65 cents. TWO for $1.00

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[Mention this paper.] 6-7d

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1886 NORTHSHADE APIARY, 1886

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Full colonies of Italian bees for spring delivery. Nuclei, queens, and bees by the pound for the season. Comb foundation for sale. Wax worked by the pound or for a share. Fdn. samples free. Price list ready. **O. H. TOWNSEND,**
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A convenient register, with printed headings for sixty colonies, giving a record of swarms, surplus honey, and queens. Price only three cents.

SUPPLIES.

Industrial S. & W. Hives, Carniolan and Italian queens, etc. Price List free. **J. W. CLARK,**
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FOR THE MANUFACTURE AND SALE OF

BEE - KEEPERS' ⁘ SUPPLIES.

The only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, etc. The Viallon and Root Simplicity Hives a Specialty.

ITALIAN QUEENS,

Untested, in April, $1.25 each; $13.00 per doz. From May 5 to June 1, $1.10 each, $12.00 per doz. After June 1, $1.00 each, $10.00 per doz. Tested, $2.50 each; select tested, $3.00 each to first of June. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

With pure Italian queen, containing 3 pounds of bees when received; in April, $4.00; after May 25, 25 cts. less. Safe arrival and satisfaction guaranteed.

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Delivered, express prepaid, in lots of 5 pounds or more. Send for price. Same discount given as offered by A. I. Root, in GLEANINGS from month to month. For more particulars, send for catalogue for 1886. **P. L. VIALLON,**
7tfdb **Bayou Goula, Iberville Parish, La.**

SUMNER & PRIME,

BRISTOL, ❊ VERMONT.

—MANUFACTURERS OF—

Bee - Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and samples free.
1-2tfdb

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

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HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

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Cheap Farms. Splendid climate. Short Mild Winters. Good Markets. Descriptive Land List Free.
6-11db **GRIFFIN & JERVIS, PETERSBURGH, VA.**

BEES IN IOWA. —SEE FOSTER'S— **ADVERTISEMENT.**

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SUPPLIES VERY CHEAP!

ITALIAN BEES, BEE-HIVES,

SECTIONS, FOUNDATION, EXTRACTORS, SAW-MANDRELS, ETC.

As I manufacture all kinds of supplies, I can sell very cheap. **E. Y. PERKINS,**
5tfd **Jefferson, Greene Co., Iowa.**

FOUNDATION, WARRANTED FIRST CLASS. | **SECTIONS,** OF FINE QUALITY.

Samples and reduced price list of supplies, *free.*
J. D. GOODRICH,
3-5-7-9-11—19d EAST HARDWICK, CAL. CO., VT.

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is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, Germantown, Philadelphia, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
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WE WILL SELL

Chaff, hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db

A. F. STAUFFER & CO., Sterling, Ills.

WANTED.

Names of parties wanting first-class dovetailed honey-sections, to whom samples will be sent on receipt of address. Also crates in season. A perfect iron section-box former sent for $1.00, and satisfaction guaranteed. **Geo. R. Lyon,**
4-9db GREENE, CHENANGO CO., N. Y.

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—WITH—
SUPPLY DEALERS
FOR NEXT SEASON'S STOCK OF GOODS.

CHAFF, STORY AND HALF CHAFF, AND SIMPLICITY HIVES, SMOKERS, EXTRACTORS, COMB FOUNDATION, FRAMES, SECTIONS, BOOKS, ETC.,

At wholesale and retail. Unexcelled facilities. Circulars and estimates free. Successors to S. C. & J. P. Watts. Sta. Kerrmore, B. C. C., & S. W. R. R.

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1tfdb.

LOOK HERE

To introduce my strain of pure bright Italians, equal to any in the United States, I will offer tested queens, $1.00 each; extra fine, selected, $1.50 each; one-frame nucleus, consisting of one extra select queen, one frame of brood, ½ lb. bees, for $2.00. If you want any bees, send me your address on postal and I will send you sample by return mail. Beeswax or honey taken in exchange.

22tfdb **THOMAS HORN,**
Box 691, Sherburne, Chen. Co., N. Y.

ITALIAN BEES IN IOWA.

60 c. to $1.00 per lb. Queens, 30 c. to $2.50. Order from new circular, sent free. 6tfdb

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

SUPPLIES!

HIVES, SECTIONS, CASES, CRATES, ETC. COMB FOUNDATION, ITALIAN BEES AND QUEENS, BRED FOR HONEY-GATHERING.

Wax wanted. Send for free Catalogue to
6tfd REYNOLDS BROS., WILLIAMSBURG, WAYNE CO., IND.

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FOUNDATION.

Warranted good as any made at the following prices:

All-in-one-piece V-groove Sections, $4.00 per 1000; for larger lots write for prices. Wax worked very cheap. Send for price list of other Supplies.

1 to	25	lbs.	per	lb.	42c.
25 "	50	"	"	"	40c.
50 "	100	"	"	"	39c.
100 "	500	"	"	"	38c.

Thin, 6 cts. per lb. extra.

M. H. HUNT,
6tfdb Near Detroit. BELL BRANCH, WAYNE CO., MICH.

J. P. CONNELL,
HILLSBORO, HILL CO., TEX.,

Makes a specialty of rearing pure Italian queens, and of shipping bees in two, three, and four frame nuclei. Tested queens in March and April, $2.50; after, $2.00. Untested queens in April, $1.25; after $1.00. Satisfaction guaranteed. 67911d

SEND FOR CIRCULAR.

BEES BY THE POUND. READY NOW.

Price $1.25 per ½ pound. Address
678d **N. R. FITZ HUGH, JR., Picolata, Fla.**

FOR SALE.—20 Colonies Italian Bees on 7 L. frames, in shipping-box, $7.00 each. Eggs from pure-bred S. C. Brown Leghorn fowls (Bonny's strain), $1.00 for 15. 567d T. O. KEATOR, Accord, N. Y.

THE
Apicultural Establishment
OF
F. J. DOKOUPIL,
In Vigaun, Upper Carniola, Austria, Europe,

Send QUEENS postpaid. Safe arrival and purity of breed guaranteed.

Price each in German Reichsmark.

	Apr.	May.	Jun.	Jul.	Aug	Sep	Oct
Carniolan Queens, Native,	8	7	6	5	5	4	4
Italian Queens, Native,	9	9	8	7	7	6	6
Cyprian or Syrian Queens, Native,	20	20	20	20	18	18	18
Cyprian or Syrian Queens, bred in Carniola,	12	12	11	11	10	10	10

579db

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Our market, and location as a trade center, the rapid growth of our city and country, gives us a large demand for honey. We have found it impossible to keep a stock of 1-lb. frames, unglassed, and of which we are in need. This style of comb sells much faster than any other and we will make liberal offers on receipt of samples. We are well stocked on 2-lb. sections, also extracted. Beeswax wanted on commission. **CLEMONS, CLOON & CO.,**
15-7b KANSAS CITY, MO.

100 Colonies of Bees for Sale!

My 650 colonies of bees are more than I can well handle, and I will sell 100 full colonies at $5.00 each for hybrids, $6.00 for pure Italians. Discount on larger numbers. I will also sell a few colonies of Caucasian bees, which breed I imported from the Caucasus Mountains, Asia, in 1880, and have found them of great value to me. Address

JULIUS HOFFMANN,
5-6-7d **Canajoharie, Mont. Co., N. Y.**
(Formerly Ft. Plain, N. Y.)

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KIND WORDS FROM OUR CUSTOMERS.

In order to supplement the offer of a nucleus of bees, I think it was, to largest club-raiser for GLEANINGS, I offer an "Ideal glass-front bee-veil."
St. Albans, W. Va., Apr. 6, 1886. J. C. CAPEHART.

GLEANINGS AS AN ADVERTISING MEDIUM.

My advertisement in GLEANINGS has brought me more letters than any paper I ever advertised in, and that is over two hundred. W. J. HESSER.
Plattsmouth, Neb., March 29, 1886.

GLEANINGS "SEMPER IDEM."

I like all of GLEANINGS, and when I like a thing I'm not going to pull it all to pieces. I think GLEANINGS is put together just as well as I could do it, and it is GLEANINGS every time. Sometimes I do not see a number of *Harper's Monthly* for years; but when I do see one it is *Harper's* or nothing else, and GLEANINGS is the same way.
MAHALA B. CHADDOCK.
Vermont, Ill., April 3, 1886.

KIND WORDS FOR ERNEST.

What excellent work Ernest is doing on GLEANINGS! Perhaps you haven't noticed it, but I *have*, and I feel like congratulating both you and him.
W. Z. HUTCHINSON.
Rogersville, Genesee Co., Mich., Mar. 23, 1886.

[Thanks, friend Hutchinson, for your very kind words. If I have merited any encouragement from one of the old veterans, I shall be happy to continue in this work; for I have sometimes felt as if I ought to keep still till I "growed" a little more in apicultural learning.] ERNEST.

SOME PLEASED CUSTOMERS, ETC.

The hives, etc., ordered of you Feb. 27, arrived the 1st inst., and were unpacked to-day, and I delivered those ordered for my neighbors. Pleased? I should say they were. You ought to have seen that smile on their faces when they saw those tin covers. They are far ahead of what we have been getting. Every thing is here — nothing missing. They cost us a little more than the Louisiana hives, on account of the longer distance; but they *suit me* better, and I expect to patronize you hereafter.

My bees are very strong in numbers, and have plenty of stores, and are also getting a good deal of honey from redbud and haw; also apple-bloom. Bees are beginning to swarm some in the neighborhood. A. P. WRIGHT.
Reagan, Falls Co., Texas, April 3, 1886.

SYRIAN AND ITALIAN QUEENS,

Before June 15, tested, $2.50 each; after, $2.00 each. Untested, before June 15, $1.00 each; after, single queen, $1.00; six for $5.00; twelve for $9.00.
6tfdb **ISRAEL GOOD, Sparta, Tenn.**

HEADQUARTERS IN THE SOUTH
FOR THE MANUFACTURE AND SALE OF
BEE-KEEPERS' ∴ SUPPLIES.

The only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, etc. The Viallon and Root Simplicity Hives a Specialty.

ITALIAN QUEENS,

Untested, in April, $1.25 each; $13.00 per doz. From May 5 to June 1, $1.10 each, $12.00 per doz. After June 1, $1.00 each, $10.00 per doz. Tested, $2.50 each; select tested, $3.00 each to first of June. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

With pure Italian queen, containing 3 pounds of bees when received; in April, $4.00; after May 25, 25 cts. less. Safe arrival and satisfaction guaranteed.

BEES BY THE POUND,

Delivered, express prepaid, in lots of 5 pounds or more. Send for price. Same discount given as offered by A. I. Root, in GLEANINGS from month to month. For more particulars, send for catalogue for 1886. **P. L. VIALLON,**
7tfdb **Bayou Goula, Iberville Parish, La.**

BUCKEYE SECTIONS, V-GROOVE.

WHITE AS SNOW. ANY SIZE. VERY CHEAP.

We manufacture the SCIENTIFIC BEE-HIVE; shipped in the flat (body and frames); can be set up in five minutes, without hammer or nails. This hive beats them all for box honey. Send for circular to
7d **J. B. MURRAY, Ada, O.**

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

VIRGINIA LAND AGENCY.

Cheap Farms. Splendid climate. Short Mild Winters. Good Markets. Descriptive Land List Free.
6-11b **GRIFFIN & JERVIS, PETERSBURGH, VA.**

BEES IN IOWA. — SEE FOSTER'S — **ADVERTISEMENT.**

HORN PAYS EXPRESS CHARGES
SEE ADVERTISEMENT.

HELP FOR THE SUFFERERS.

400 lbs. of black bees to sell at $1.00 per lb. During April and May, black queens, 20c, and hybrids 40c, to go with them. Safe arrival and satisfaction guaranteed. MRS. J. ATCHLEY,
7-8d Lampasas, Texas.

ITALIAN QUEENS, untested, May and June, $1.00; six for $5.00; after July 1st, 85c each; six, $4.50; 2-fr. nucleus, untested queen, June, $2.75; after July 1, $2.25. Send for price list of bees by the pound, fdn., etc. JOHN NEBEL & SON, High Hill, Mo.
7-12db

BEE-KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, 48 pages; FREE to all bee-keepers sending address to
8tfd JOS. NYSEWANDER, Des Moines, Iowa.

STANLEY'S
AUTOMATIC HONEY-EXTRACTOR.

The only self-reversing Honey-Extractor known. Will do double the amount of work of any other extractor. Send for new circular, just out April 1st. Californians, send to Baker & Barnard, San Buenaventura, Ventura Co., Cal. Canadians, send to E. L. Goold & Co., Brantford, Ont., Can.

All others, address G. W. STANLEY,
8tfdb Wyoming, N. Y.

NOTICE.—Owing to changes in our business arrangements, my brother, J. E. Stanley, will not, at present, manufacture the Automatic honey-extractor at Topeka, Kansas, as stated in GLEANINGS; but for the season of 1886, or until further notice, machines for *all* States except California will be made at Wyoming, N. Y., as before.

G. W. STANLEY.

QUEENS UNEXCELLED.

From Mr. Benton's best imported mothers, very low. Send for circular to
8tfdb S. F. REED, N. Dorchester, N. H.

FOR SALE, 100 THREE-FRAME NUCLEUS HIVES.

Italian bees, ready for shipping by the 5th day of April, 1886. Address D. O'ROURKE,
8-9d Selma, Dallas Co., Ala.

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

PURE ITALIAN BEES.

Full colonies, nuclei, bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. ☞ Send for my circular and price list. You will save money by so doing. C. M. DIXON,
4-11-db PARRISH, FRANKLIN CO., ILL.

ALL PROGRESSIVE BEE-KEEPERS

Suffer for my price list of Bee-keepers' Supplies of all kinds. Send for price list and be convinced.

J. W. BITTENBENDER,
4-9db KNOXVILLE, MARION CO., IOWA.

ITALIAN BEES AND QUEENS,
Full Colonies, NUCLEI, AND QUEENS, CHEAP.

Send for Circular.

C. C. VAUGHN, *4tfdb* COLUMBIA, TENN.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3btfd

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Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

---

101 Designs for brackets, etc., for 10c and 5 names of fret-sawyers. J. L. Hyde, Pomfret Landing, Ct.
8tfd

1000 LBS. OF BEES FOR SALE. See GEDYE'S advertisement. 8-12db

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REVERSIBLE SIMPLICITY HIVES, complete.........$2 50
Sectional Brood-Chamber Hives (3) complete 3 00
Either for extracted or section comb honey—specify which.
Reversible Section Cases, complete............. 1 00
Containing 30 sections, with starters and separators. Can be used over ordinary Simplicity hive. See page 207, GLEANINGS, March 15, 1886.
QUEENS. Italians, Hybrids, Blacks, 35c to $3 00
BEES, either race, in strong cages, 1 lb......... 1 25
Send for catalogue and price list.
8d HEMPHILL & GOODMAN, ELSBERRY, MO.

ADMINISTRATOR'S SALE.

The undersigned will sell at public auction, at premises of F. E. Townsend, deceased, the following described property, on Wednesday, April 28, 1886: About 75 colonies of Italian bees, mostly in double-walled chaff hives, Gallup frames, 11x11¼, and in good condition. About 50 single-walled hives, and frames of empty combs, in No. 1 condition; 1 new comb-foundation mill; uncapping-stand; smokers, 10 crates and sections, and other articles used in the bee-business, too numerous to mention.

Also offered for sale, 40 acres of choice land, 3 acres cleared, rest good timber; new frame two-story house, 16x24, finished outside, and primed, ready for plastering inside; drive well and pump in house. Situated 8 miles southwest of Ithaca, County-seat of Gratiot Co., Mich. This locality can not be equalled in the State for bee-business. Above property is subject to private sale before commencement of auction. For particulars, address

H. E. TOWNSEND,
8d **Hubbardston, Ionia Co., Mich.**

HORN PAYS EXPRESS CHARGES
SEE ADVERTISEMENT.

The BUYERS' GUIDE is issued March and Sept., each year. ☞ 280 pages, 8½ x 11½ inches, with over 3,500 illustrations — a whole Picture Gallery. GIVES Wholesale Prices ***direct to consumers*** **on all goods for personal or family use. Tells how to order, and gives exact cost of everything you use, eat, drink, wear, or have fun with. These INVALUABLE BOOKS contain information gleaned from the markets of the world. We will mail a copy FREE to any address upon receipt of 10 cts. to defray expense of mailing. Let us hear from you. Respectfully,**

MONTGOMERY WARD & CO.
227 & 229 Wabash Avenue, Chicago, Ill.

7-12db

GOOD NEWS FOR DIXIE!
SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

FDN., 45 to 52 cts.; sections, 4¼x4¼, $4 per M. Will those who have rec'd my circular please take notice. Send for circular. L. J. TRIPP, Kalamazoo, Mich.

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50 COLONIES BEES FOR SALE.

I have 50 stands of bees for sale, hybrids and blacks, and in the Mitchell hive, 15 frames in hive, well painted, and metal rabbets. I live on the Arkansas Midland R. R., and can ship by R. R. or water via Helena. I will take $4.50 per stand, delivered on board train, and delivered by latter part of March. PETER METZ,
3-8db Poplar Grove, Phillips Co., Ark.

Look! Honey-Comb Foundation! Look!

FRIENDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills. Discounts on early orders. Send for free samples and prices. Strawberry plants, grape roots, and Italian queens at reasonable prices. Address

C. W. PHELPS & CO.,
4-5-6tfdb TIOGA CENTRE, TIOGA CO., N. Y.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—To exchange foundation for wax.
59db B. CHASE, Earlville, Madison Co., N. Y.

WANTED.— To exchange nursery stock, especially evergreens, for Italian bees, queens, and two-frame nucleus with Italian bees and queen.
678d R. A. LEWIS, Cherokee, Iowa.

WANTED.— To exchange Italian bees, brood, and queens, for fdn., beeswax, type-writer, or any thing having a standard market value. 6tfdb
THOMAS HORN, Box 691, Sherburne, Chen. Co., N. Y.

WANTED.—To sell or exchange, farm, 180 acres, good buildings, good sandy soil; also latest improved Steam Thrashing-machine. Either or both at a bargain. Address J. A. OSBUN & SON,
7tfdb Spring Bluff, Adams Co., Wis.

WANTED.—To exchange Carniolan and Italian queens or bees, for pure-bred Brown Leghorn (Bonney's Strain), and Wyandotte eggs, for hatching. Send for circular. CHAS. D. DUVALL,
7tfdb Spencerville, Mont. Co., Md.

WANTED.—To exchange.—I have a complete printing-office, consisting of 20 fonts of general job type, nearly new, some never used. For particulars see advertisement elsewhere. Make an offer.
8tfdb E. KRETCHMER, Coburg, Iowa.

WANTED.—To exchange pure Italian queens for beeswax at 28c per lb. Queens, select, $3.00; warranted, $1.50. Ship wax by freight to Barrytown, N. Y. CORNELIUS BROS.,
7 12 db LaFayetteville, Dutchess Co., N. Y.

WANTED.—To sell or exchange, pure S. C. Brown Leghorn eggs at 75 cents per 13, for beeswax, or books of poetry or history.
7-8d MRS. ALICE BRIGHT, Mazeppa, Minn.

WANTED.—To sell cheap, or exchange, an opossum, 3 squirrels (gray), 3 years old; Concord vines, Sharpless plants, young white-poplar trees, or hybrid bees, for B. Leghorns, Italian bees, or supplies in the flat. B. W. HEAD, Vienna, Va. 8d

WANTED.—To exchange for bees, or pure-bred poultry, 10,000 Mammoth-Cluster and Turner Raspberry-plants, $1.00 per 100, $6 00 per 1000; also 20,000 Strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale; 75 cents per 100; $4.00 per 1000.
8tfdb W. J. HESSER, Plattsmouth, Neb.

WANTED.—To sell or exchange 100 lbs. of bees, in April and May, for foundation. Sample wanted; 75 cts. per lb., 10 lbs., $6.50. Safe arrival guaranteed. Hybrid queens, 50 cts. now. Prompt attention to all orders. S. H. COLWICK,
8tfdb Norse, Bosque Co., Texas.

WANTED.—To exchange bees (Italian or hybrid) for eggs of Pekin ducks or eggs of Wyandotte fowls, or high-class poultry. Bees are in L. and Simplicity hives. Write for particulars.
8-10db J. H. EBY, North Robinson, Craw. Co., O.

WANTED.—To exchange basswood - trees and raspberry-plants for bees by the pound.
8d H. WIRTH, Borodino, Onondaga Co., N. Y.

WANTED.—To exchange 13 Pekin duck eggs, 40 cts.; 26, 75 cts., for cash. Warranted fresh.
8d ALBERT L. MARTIN, Leonardsburg, Del. Co., O.

WANTED.—To sell or exchange Ideal glass front veils (75c by mail). See 16-page circular of testimonials; 2-story L. hives ($2.25); chaff hives ($4.50); Books, $50.00; Fruit-evaporator, $35.00, for bees, sections, foundation-mill, eggs, poultry, pigs, or offers.
JNO. C. CAPEHART, Kanawha-Valley Apiary,
8tfdb St. Albans, W. Va.

WANTED.—To exchange bees for a Barnes saw, foundation-mill, or Light Brahma fowls; or I will sell bees by the pound; also queens in season.
JAMES P. STERRITT,
5-6-7-8d Sheakleyville, Mercer Co., Pa.

WANTED.—To exchange pure Brown Leghorn eggs at 75 cts. for 15; 45 eggs, $2.00; 100 eggs, $4.00, for foundation. Cash preferred.
8-9d R. J. NASH, Williamson, Wayne Co., N. Y.

WANTED.—To sell or exchange Strawberry-plants, Crescent Seedling, Sharpless, Manchester, Chas. Downing, Mt. Vernon, and Longfellow. Per dozen, by mail, postpaid, 25 cts.; by express, per 100, 50 cts.; per 1000, $2.50. J. A. GREEN,
8 9d Dayton, La Salle Co., Ill.

WANTED.—To exchange 800 empty combs (nearly all wired fdn.), L. or Simplicity size, and 100 Simplicity hives (50 covers, 50 bottom-boards (all well painted, for basswood or white-clover honey, to be delivered next fall, combs and hives ready to ship now. Write for particulars.
E. T. FLANAGAN,
7 8d Box 995, Belleville, St. Clair Co., Ill.
P. S.—Will exchange 200 lbs. sweet-clover seed for honey or raspberry-plants.

WANTED.—To exchange or sell. *Eggs for hatching*, from 3 varieties of high-class fowls, selected stock, costing from $12 to $20 per pair. Brown Leghorns, Silver-Spangled Hamburgs, and Plymouth Rocks. Eggs, per setting of 13, $2.00. Fowls for sale. Address A. H. DUFF,
8tfdb Creighton, Guernsey Co., Ohio.

WANTED TO EXCHANGE.—One Barnes foot-power buzz-saw complete, good as new; also one Steavens 22-cal. rifle; won championship of Philadelphia; good as new; four 10-gallon honey-cans with large gates. Also years 1884 and '85 of GLEANINGS complete. Also a set of big U. S. pennies for every year excepting three; also 7-colony pennies, all in first-class condition, for some small power or portrait camera and lens or offers.
C. H. BEELER, 849 North 42d St., Philadelphia, Pa.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have a few black queens for sale at 25 cts. each. Ready by May 5th. T. L. REES,
Winchester, Adams Co., Ohio.

I shall re-queen my whole apiary this year, and will sell black and hybrid queens at 25 and 50 cents each, from May 1st. D. A. FULLER,
Cherry Valley, Winnebago Co., Ill.

100 black and hybrid queens for sale at 30 and 40 cts. each, all clipped. Address L. T. AYRES,
Kankakee, Kankakee Co., Ill.

Black and hybrid queens for sale at the usual rates. GEO. D. RAUDENBUSH,
Reading, Pa.

FOR SALE.—8 young mismated Italian queens. Ready now. MISS A. M. TAYLOR,
Mulberry Grove, Bond Co., Ill.

50 Colonies of
Italian Bees For Sale,

In shipping-box, 7 L. frames, tested queen, per colony $6 00
4-frame nucleus, tested queen 3 00
" " " untested queen 2 50
Safe arrival guaranteed.
7-10db **TOM PHELPS, Sonora, Ky.**

WANTED SITUATION IN AN APIARY. Salary reasonable. Satisfaction guaranteed. Address WESLEY BALDUFF,
April 10. 8d Milford, Iroquois Co., Ill.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—We note an improvement in sales of comb honey the past two weeks; and owing to the lateness of the season, prices rule low. In consequence of the low rates of freight from San Francisco to New York, many dealers in honey are taking advantage of the rates, and shipping extracted honey to this market at prices ranging from 4½@5½c per lb. This has already had its effect on State goods. We quote prices as follows:

Fancy white comb honey, 1-lb. sections,	12@13c
" " " " 2-lb. "	9@10c
" buckwheat " 1-lb. "	9c
" " " 2-lb. "	7@8c
Off grades, 1@2c per lb. less.	
Extracted white-clover,	6@7c
" buckwheat,	5@5½
" California,	5@6c
" Southern, as to color and flavor, per gallon,	50@60c

April 6, 1886. McCAUL & HILDRETH BROS.,
34 Hudson St., cor. Duane St., New York.

CHICAGO.—*Honey.*—Market active this month, but prices are easier, 16 cents being the very outside for white comb; extracted, without much change. *Beeswax* steady at 25 cts. per lb. Market brisk all around.
R. A. BURNETT,
April 10, 1886. 161 S. Water St., Chicago, Ill.

CLEVELAND.—*Honey.*—The market is bare of new 1-lb. sections, and in consequence the 2-lbs. begin to move a little; also, for want of new the old 1-lbs. are moving at 8@to9c. Best 1-lb. new white would sell readily at 14@15c; 2-lbs., 12@13c. Extracted, 7c. *Beeswax*, scarce at 25@28c. A. C. KENDEL,
April 20, 1886. 115 Ontario St., Cleveland, Ohio.

MILWAUKEE.—*Honey.*—The supply of choice honey of any sort continues quite small, and shipments of either comb or extracted will find a sweet reception. We can quote choice 1-lb. sections, white, at 16@18c; 2-lbs., 15@16c. Dark honey not wanted. Extracted, white, in kegs or bbls., 7½@8½c; good dark, do., 6@6½c. *Beeswax* wanted; 25 cts. for yellow.
April 10, 1886. A. V. BISHOP,
142 W. Water St., Milwaukee, Wis.

CONVENTION NOTICES.

The Western N. Y. and Northern Pa. Bee-keepers' Association will hold their next annual meeting at Randolph, N. Y., May 4, 1886. A. D. JACOBS, Sec., Jamestown, N. Y.

The semi-annual meeting of the Progressive Bee-keepers' Association will be held at Grange Hall, Bedford, O., on Thursday, May 6, 1886, at 10 o'clock A. M.
Bedford, Cuyahoga Co., O. MISS DEMA BENNETT, Sec.

Linwood Bee-Keepers' Association will be held in Condit's Hall, Rock Elm, Wis., Saturday, May 1, 1886, at 1 o'clock P.M. All interested in bee-keeping are cordialy invited to attend and make the meeting a profitable one. B. J. THOMPSON, Sec.

The Annual Meeting of the Northern Ohio Bee-keepers' Association will be held in the New Town-Hall at Wellington, Ohio, Friday, April 30, 1886. All are invited to come and help make the meeting both pleasant and profitable. A special invitation is extended to the ladies. The officers of the Association will be elected at this meeting. H. R. BOARDMAN, Sec.
East Townsend, Ohio, April 6, 1886.

The Keystone Bee-keepers' Association will meet at Court-House in Scranton, Pa., on Tuesday, May 11, 1886, to elect officers, transact important business, and listen to the able papers of Messrs. G. M. Doolittle on the production of comb honey; L. C. Root on the production of extracted honey, and the Dadants on queen-rearing and general management. Come one and all, and make this meeting the best of all.
Clark's Green, Pa., Apr. 2, 1886. ARTHUR A. DAVIS, Sec.

The Western Bee-Keepers' Association will meet in Pythian Hall, N. W. cor. 11th and Main Sts., entrance on 11th, Kansas City, Mo., Apr. 29, 30, 1886. Parties can take the Cable line at Union Depot for 9th and Main Sts.

The following essays will be read:

"The Honey Market," Clemons, Cloon & Co., Kansas City, Mo.
"Bee-keeping in Iowa," E. Kretchmer, Coburg, Iowa.
"Best Method of Handling Bees for Comb Honey," A. A. Baldwin, Independence, Mo.
"Missouri Bee-keeping," I. D. Pearce, Kirksville, Mo.
"Does Bee-keeping pay as a Pursuit?" Jos. Nysewander, Des Moines, Iowa.
"Invertible Frames and Hives," J. M. Shuck, Des Moines, Iowa.
P. BALDWIN, Sec.
Independence, Jackson Co., Mo.

CIRCULARS RECEIVED.

The following have recently sent us their price lists.

J. M. Shuck, Des Moines, Ia., a 32-page, illustrated price list of bee-supplies. Contains much valuable information besides.
H. H. Brown, Light Street, Pa., 18-page list, bees and queens.
John C. Capehart, St. Albans, W. Va., 16-page list of bees and queens.
T. S. Sanford, Bradford, Pa., 8-page list — bee-supplies.
Bright Bros., Mazeppa, Minn., 20-page list, apiarian supplies.
Smith & Smith, Kenton, O., 20-page list, supplies in general.
W. S. Russell, Millbrook, Ont., 12-page circular, bee-supplies.
Joseph E. Sharer, North River, Va., an advertising sheet of apiarian supplies.
Jno. C. Stewart, Hopkins, Mo., a 10-page list — bee-supplies.
J. E. Pryor, Dexter, Ia., a 4-page list — hives a specialty.
T. F. Shepard, Franklin, Pa., 6-page list, apiarian supplies.
C. Weeks, Clifton, Tenn., an advertising card—Italian bees a specialty.
A. E. Woodward, Groome's Corners, N. Y., a 4-page sheet of bees and queens.
J. B. Kline, Topeka, Kan., 4-page price list, poultry and bees.
J. C. Bowman, North Lima, O., a 12-page list, bee-supplies and poultry.
C. M. Goodspeed, Thorn Hill, N. Y., 4-p. sheet, bees and poultry.

The following have had their price lists printed at this office:

G. W. Stanley, Wyoming, N. Y., 6-page price list — specialty, the Stanley Automatic extractor.
Abbott L. Swinson, Goldsboro, N. C., an advertising sheet—bees and queens a specialty.

I am being asked my opinion of the new circulars Mrs. Cotton is again sending out quite plentifully. The statements she makes, and the prices she charges for the goods she sends out, would, in my opinion, forbid her being classed with our regular supply-dealers, to say nothing of the strings of complaints against her that have filled our bee-journals for years past.

1000 Lbs.

BEES FOR SALE.

Here I am for the spring of 1886, with **1000 LBS. OF HYBRID BEES** for sale by the pound. Bees $1.00, and queens 50 cts. in May; bees $1.00 and queens 35 cts., after the 10th of June. All express charges paid by me in the United States and Canada. Safe arrival guaranteed. Orders received first will be filled first. Remember, I can not fill all in one day. Order early, and avoid delay. No order will be booked without the money. Money returned when required. I have no circular. Inclose stamp when you want a reply. I will start to ship on the 15th of May, weather permitting.

THOMAS GEDYE,
8-12db **La Salle, La Salle Co., Ill.**

IMPORTED

ITALIAN QUEENS.

We shall receive 100 Queens from Italy in May.

MUCCI & BRO.,
7-8d **LEXINGTON, KY.**

GIVE ME LARGE ORDERS June 1st, and I will warrant queens for 75 cents each. I have no importation but Italians. This will not appear again. If you are in want, speak at once. **Ira D. Alderman,**
8d TAYLOR'S BRIDGE, SAMPSON CO., N. C.

ONE POUND of **HYBRID BEES** containing mismated queen, only $1.25, in April.
8d MISS A. M. TAYLOR,
Mulberry Grove, Bond Co., Ill.

$3.50. ❧ CHEAP! CHEAP! ❧ $3.50.

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GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A.Whiting

Vol. XIV. APRIL 15, 1886. No. .8

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SHALL WE SHIP OUR HONEY IN SECOND-HAND WHISKY-BARRELS?

DOES IT DAMAGE THE TRADE BY SO DOING?

I HAVE looked for a long time in several of the bee-journals for information regarding shipping extracted honey by the barrel. I have seen but one article in a bee-journal, and that was in the *American Bee Journal* during Aug., 1884, and the pamphlet of the Messrs. Dadant on "Extracted Honey." Both of the before-mentioned articles, from Messrs. Muth and Dadant respectively, are not explicit enough for the beginner, and are misleading besides.

Not being able to profit by the experience of others, I was forced to enter the dear school of personal experience the past year, and learn for myself. I haven't Mr. Muth's article at hand, and can not state its points correctly; but Mr. Dadant's pamphlet, on page 13, says: "The barrels that we use for extracted honey are oak barrels which have contained alcohol or whisky. We allow them to dry up thoroughly before using, and wet them only slightly when putting up the honey." This was my main guide during the past season, except I did not "wet them slightly." I allowed the whole and half whisky-barrels to stand in the shade, and dry till the hoops would fall off when I moved them. As I needed them I drove the hoops as tightly as I could drive them. Occasionally I would burst a hoop off in driving it. Then I put in my honey, bunged the barrels up, and rolled them under the house. In two weeks the hoops would be so loose that the honey would be oozing out all around the barrels, and the cracks would be covered with bees.

When I re-coopered them I was able to drive the hoops (except the end hoops) from ¼ to ½ an inch each time.

Last April I sent 4½ barrels of white-clover honey to Mr. C. F. Muth, Cincinnati, O., first having to re-drive the hoops after hauling to the landing. I wrote to Mr. Muth, asking his opinion as to quality. He answered, "It is of good quality, but does not come up to our Northern clover-honey." Why? The probable reason will appear later on. He gave me 5 cts. a pound for it.

In June I sent seven barrels of white-clover honey to McCaul & Hildreth Bros., New York, in what I thought perfect order. The barrels were dry as bones; coopered as tightly as hammer and steel edge could drive them before loading to take to the landing; re-driven after unloading at the landing, and I had perfect confidence that they were in perfect condition, both as to quality of honey inside the barrels, and cooperage on the outside the barrel. In a couple of weeks I received a letter from McC. & H. Bros., in which they said that the honey arrived in bad order, and was leaking badly; that they had to have the barrels re-coopered on the wharf, and again when they were unloaded at the store. They charged me $1.75 for cooperage, and rendered me an account sales at 55 cents per gallon. The rest of my honey was dark.

Now, Mr. Root, what was the cause of such low prices for white-clover honey? I wrote to a Chicago commission merchant concerning the future honey market, and he replied as follows:—"If your honey is free from the odor of that which comes in Southern honey generally, I don't know of any reason why it will not grade with our Northern white clover."

Where does this "odor" come from, that depreciates the price of Southern honey? A druggist here told me a short time since that the smell of a whisky-barrel would taint honey, and I am fully prepared to accept it as truth. My average price for honey the past year, above freight, etc., was 4½ cts. per pound; 11½ barrels were white clover, and 9½ dark. That seems to me a very poor price for honey. My reason for it is, that the whisky-barrels ruined the quality of the honey. If this is true, it will be in keeping with the fact that whisky ruins the quality of about every thing it comes in contact with, especially the human kind. I am done shipping white-clover honey in stinking whisky-barrels, which cost 75 cents, while I can get brand-new cypress molasses-barrels for $1.10, or second-hand molasses-barrels in good order, free on board, for 75 cents. I have no doubt that much of the honey that helps to injure the market is caused by such doings as mine last year—shipping fine honey in stinking barrels that are fit for nothing but firewood. I venture to say, that a whisky-barrel will taint honey enough to depreciate its value at least one cent per pound; and if so, that would be a money loss of about $5.00 a barrel. If this be so, is not a whisky-barrel, which seems cheap at 75 cents, but which causes a loss of over $4.00 a barrel, besides causing slow sales, the very costliest barrel possible to find? I have just laid in ten cypress (second-hand) molasses-barrels re-coopered, in fine order, for 75 cents apiece, and I shall henceforth have no further use for whisky-barrels for honey.

This matter cost me a great deal this past season to learn about, and I wish you would give your ideas concerning packing honey in hard-wood second-hand whisky-barrels. This whole Mississippi-River country is a great honey country and *saloon* country, and whisky-barrels are used because presumably cheap. Please help to put that kind of package under condemnation. C. M. HIGGINS.

Hahnville, La., Mar. 4, 1886.

Many thanks, friend H., for your very valuable, practical article. Some years ago we put up some honey in whisky-barrels; and although they were not waxed we never had any complaint on that score, that I know of. Now, are you not afraid that you will have your honey tainted more or less by barrels of any kind? I should be very much afraid of the second-hand molasses-barrels you speak of, unless they are very thoroughly washed, and then waxed; and I have a sort of notion that wood may taint honey, even in spite of waxing; that is, I have been better pleased with the flavor of white-clover honey that was run right into iron-jacket cans, tin sap-pails, or tin storage cans, than when put into any kind of wooden receptacle. The package illustrated on page 274 of last issue, it seems to me, is going to be pretty nearly what is wanted, when we settle down to a regular package for honey.—In regard to the flavor of white-clover honey that comes from the South, I confess I have never seen any samples of Southern honey that didn't have a peculiar flavor, a little different from the white-clover honey of, say, Ohio, York State, Michigan, and Wisconsin. I have sometimes thought there might be some particular honey-bearing plant in the South that blooms about the time of white-clover, and that it was so prevalent that the honey partook of the flavor, more or less. I believe friend Muth considers, as a rule, Southern honey not quite as desirable as that from the North; that is, there are more people who prefer the peculiar flavor of the honey from the Northern States than any other kind that has been put on the market. Even the finest specimens of basswood honey now begin to be quoted at one cent lower than clover.

HEDDON'S INVENTION.

SOME CORRECTIONS.

BRO. ROOT:—I accept your offer of a "wee" space to correct the false impression made by the use of several columns and cuts illustrating my invention. I inclose you a copy of Mr. Kretchmer's patent, cited in his article on p. 211. Now, you see that Mr. K. is deceiving your readers, for there is not one feature in the construction or purpose of his old hive that anticipates any feature or function of mine—*not one.* The brood-chamber is *not* in two divisible parts; it can *not* be divided, alternated, nor inverted; neither can the surplus-apartment be inverted. The purpose of his invention, as set forth in his four declarations, is entirely foreign to mine. Why do our brothers wish to wrong me in this way? I call your attention to the fact, that, in the last issue of the *A. B. J.*, page 200, Dr. Tinker concedes the hive he described in your paper, pages 203, '4, '5, as coming under my invention. JAMES HEDDON.

Dowagiac, Mich.

We notice, in comparing friend Kretchmer's article on page 211 with his patent-claim, the *last clause* is not to be found anywhere in said claim. We have written to him for an explanation.

KIND WORDS FROM PROF. COOK; HEDDON'S NEW HIVE, ETC.

"RENDER UNTO CÆSAR THE THINGS THAT ARE CÆSAR'S."

DEAR MR. EDITOR:—I need not tell you how highly I appreciate GLEANINGS, and of the pleasure which it has ever given me to note the progress which you have made in building up a journal which has taken fast hold of the affections of our bee-keeping public. GLEANINGS deserves to be what it is—a tremendous force in the country. It has reached out in every way that it could to promote the welfare of its patrons, and has certainly greatly aided its readers in the hard matters of busy, practical, every-day life, and, better still, helped them on to nobler, better lives. Hence you will not wonder that I am grieved when I see it taking what looks to me to be a backward step, aiding wrong, and abetting that spirit—too rife among us—of dishonesty where it is safe. It seems to me that stealing melons is no less a sin because community will condone it. Genuine honesty will not cheat in a horse-trade because it is reputed common.

Now, my friend, we have all known you too long to even dream that you are intentionally doing wrong or injustice; so if, as I fear, you are in this one case aiding injustice and helping to make men less scrupulous of others' rights, you would, when convinced, feel more keenly the error than would any other person.

I believe most sincerely, as I believe nine-tenths of the intelligent bee-keepers of the United States and Canada do, that Mr. Heddon's hive and methods, as given in his new book, are original. Have you, my dear friend, the faintest conception that we should have heard of this hive and system, if Mr. Heddon had not spoken? I don't believe any informed bee-keeper in the United States thinks so. Of course, as yet the value of the invention is a question to most of us; but I can not see how the fact that it is original with Mr. Heddon can be questioned. Now, if I am right, I think I should be just as excusable in taking from your office the money received from GLEANINGS as to make and use the Heddon hive without first securing the right. I have not heard a word from our friend Dr. C. C. Miller on this subject, and I should like him to say in GLEANINGS if he does not utter an amen when he reads the above. I speak of Dr. Miller, because I believe that he is one of the best representatives of a large class—almost all—of our American bee-keepers who love justice as they do life, and who will never consent to see a brother bee-keeper robbed of his rights. A few knaves and a great deal of ignorance robbed our good father Langstroth of his property. GLEANINGS, the *American Bee Journal*, and a host of other potent influences, have so reformed the former and lessened the latter that the thing can not be repeated. Unless I am entirely mistaken in my estimate of the bee-keepers of America, and I don't think I can be, Mr. Heddon's rights, legal and moral, will be kept inviolate in their charge.

R. L. Taylor, of our State, is one of our best bee-keepers, thoroughly informed, is as true, genuine, and honest a man as is Dr. Miller, and, besides these, is a good lawyer. I have not asked his opinion in this case, but I am so sure what he would say that I should be willing to rest the case with him as a judge. Please, Mr. Editor, ask his opinion, for the good of us all.

Now, why I am so earnest in this matter is this: It seems to me our very social atmosphere is dark with dishonest practices. The business maxim often urged, "Treat every man as a knave," is a shame unto us. We are in no danger of becoming too scrupulous in our dealings with men. Let us, then, frown upon all words or acts that even savor of injustice. The work on ethics which I studied in college urged that, if the least doubt as to the morality of an act exists, we should avoid the act. I wish every editor would urge this rule.

A careful inspection of Mr. Kretchmer's patent convinces me that his hive, and the system its use would necessitate, are not Mr. Heddon's at all. Dr. Tinker's words in the *American Bee Journal* are wise and true—"*The hive is original, the system is new.*"

Again, we do no injury in urging all to do justly in this matter. Without Mr. Heddon's book and patent we should have known nothing of his hive and methods, and certainly would not have used them. We need not use them any more now. We owe our opportunity to use them to Mr. Heddon; then surely, if we think them worth adopting, we owe him the small sum asked for the right. That American bee-keepers will concede this fact, and act accordingly, is beyond question.

I am glad that the *American* and *Canadian Bee Journals* are both urging the right course. I feel just as sure that GLEANINGS and its editor will heartily adopt the same course. "Let us be just, though the heavens fall," is a resolve we may all safely make, and urge upon others. I have no doubt or fear of the outcome in this matter; but I am tremendously anxious and desirous that GLEANINGS should teach the most exact justice.

A. J. COOK.

Agricultural College, Mich., April 2, 1886.

Dear friend Cook, I have not the least doubt in the world of the entire sincerity with which you wrote the above; but yet I do think—in fact, I can not think otherwise, than that you are at least just a little mistaken. There are two plain sides to this question, and it seems to me that you are looking unconsciously on only one side. I do not feel as though it were my duty or my place to take sides with either party; but I can honestly and sincerely say this much: If any one who reads Heddon's book feels disposed to follow his plan of working, let him purchase a hive of Heddon, exactly as it should be. After having satisfied himself that he wishes to adopt the plan or principle, either buy all of his hives of Heddon or pay friend H. five dollars (or whatever other price may be agreed upon) for the privilege of making them himself. So far the matter is easy, and we are now on common ground, where we can all agree. When it comes, however, to the nice point of deciding what infringes on friend Heddon's invention and what does not infringe, I beg leave to be excused from trying to decide or even advising. I myself may be prejudiced, and I may look on one side more than on another; but this thing my conscience does tell me most strongly, we are wasting precious moments in what I am sure is not a matter of such very great importance after all; and I am sure it is wrong to take more space for this matter—not only wrong to the great mass of our readers, but a wrong in the sight of God. Can we not drop it here?

LET REASON TAKE THE PLACE OF SUPERSTITION.

A TRIBUTE TO THE WORTH OF THE EXPERIMENTAL STATIONS OF OUR DIFFERENT STATES.

WHEN I have looked over the agricultural papers, especially the papers devoted to poultry-keeping, I have been pained to see the glowing advertisements of packages of some kind of secret compound to "make hens lay," and other things of similar import. Do you ask why I felt pained? Well, I felt pained because it seemed to me so improbable that the advertisement was an honest and truthful one. It is, as it were, on a line with the remedies for bee-stings. Over and over again I have been asked to insert advertisements of bee-sting remedies. A good many times, bottles have been sent to me to test. How do you suppose it has turned out? Why, just as I have told you in the A B C book. When tried fairly, the remedy proved to have no effect whatever. If used thoughtlessly, as people often use things, the verdict would be in favor of the remedy.

They put on some of the medicine, and the pain soon ceases, as it would have done had no medicine been employed. Well, our friends pay 50 cts. for a package of egg food. It is given to the hens according to directions, and the hens begin to lay, just like drumming on tin pans. After you have drummed a while the bees begin to cluster. I have not said any thing about the egg food, because I hadn't time to investigate. Our man who has charge of the horses and cattle bought a package, and I decided in a very few moments, that, even if it were good, it was a swindle to charge 50 cents for it. Please read the following extract, which we clip from the *New-England Farmer* of March 6:

> Prof. W. H. Jordan, Director of the Maine State Experiment Station, reports in a recent bulletin upon the food value of some of the "condimental" foods found in our markets, and arrives at the conclusion that they cost those who purchase them several times their actual worth. The Imperial egg food, costing 50 cents per pound, contained 84 per cent of mineral matter, chiefly ground clam or oyster shells, and a little bone, the rest being water and organic matter; but he found only one per cent of flesh-forming material. Its true value is but a small fraction of the price asked. Poultry-keepers do well to furnish their poultry with abundant supplies of shell or bone, but these can be bought by the hundred pounds at from *one* to *two dollars*, leaving the other *forty-eight dollars* for the dealer's profit. "Johnson's Continental Food," made in Lynn, Mass., and the "English Patent Food" for cattle, which sells at from 7½ to eight cents per pound, were found to be composed chiefly of wheat bran and corn meal, with a trifle of fengreek, an aromatic seed, and a little sulphur, neither of which is of any value to healthy animals, nor of any reliance for curing sick ones. Neither of the foods have any greater nutritive value than the bran or corn meal from which they are made. But there is a mystery in the minds of most persons concerning all substances that are claimed as having medicinal properties, and so the exorbitant prices are paid quite cheerfully, The experiment stations are doing good work when they clear away the mists from before the eyes of the working and debt-paying classes.

Now, friends, it may be that this egg food contains some stimulant for poultry, such as cayenne pepper, or something of that sort; and it is also possible that the combination of substances is of value in stimulating the hens to lay; but, why charge 50 cts. a pound for something that could be sold at a profit for 5 cts. a pound? Is it fair or right? and ought any one who professes to be a Christian to engage in any such kind of business? I think we can safely say, "Thank God for this new era of experimental stations, kept up by the States."

BLUEBERRY - PLANTS AND DELOS STAPLES.

THE OHIO AGRICULTURAL - EXPERIMENT STATION NOW TAKES THE MATTER IN HAND.

I THINK you are right in exposing Delos Staples. Blueberry-plants such as he sends *will not grow* on upland soil. I ordered some of him two years ago, supposing from his advertisement and the letter he wrote me, that he had improved the upland species; but the plants he sent evidently came from a swamp, and had but very little root. They were also packed very poorly, and I knew from experience that no kind of tree or shrub with such poor roots, and so badly dried, would grow; hence I remonstrated with him before paying for them. He wrote me such a penitent letter, agreeing to profit by my suggestions as to packing, also offering to send more plants, that I sent the money. I inclosed a receipt for him to sign, and then had to write several sharp letters, and even threatened to publish him, if it was not returned. The last letter brought the receipt, and more penitential promises, but that is the last that I ever heard from Mr. Staples. I am now persuaded that I ought to have published him. He may not be defrauding intentionally, but surely his method is the same as that practiced by the Bain gang and others. First, you see an article in some unsuspecting newspaper on the blueberry, by Delos Staples; then his advertisement. Furthermore, he gets his bushes from the swamp, and either does not know how, or does not care to know how to pack them. I even agreed to *pay* him for another lot of plants, if he would pack according to my directions, but it seems that he is not anxious to have his plants experimented with.

W. J. GREEN, Horticulturist,
Ohio Experiment Station.

Columbus, O., Apr. 3, 1886.

Friend Green, I am very glad indeed to have your assistance in this matter, and I hope now the agricultural papers at large will give him such publicity as he deserves. It is not alone on blueberry-plants, but in other things that he is taking the part of a swindler. Some years ago, failing to collect an account of him, I ordered potted strawberry-plants; but instead of potted plants he simply sent plants with what seemed to be a ball of mud around the roots. As they were put loosely in a box, the mud was pounded off the greater part of them. But it was almost impossible to get a word from him in regard to the matter; and our experience was eventually about like your own. One who advertises as widely as he does ought to be just as widely exposed. A great number of letters have been received since the notice was put in GLEANINGS, and all tell the same story; viz., dry twigs, no roots, nor suitable packing.

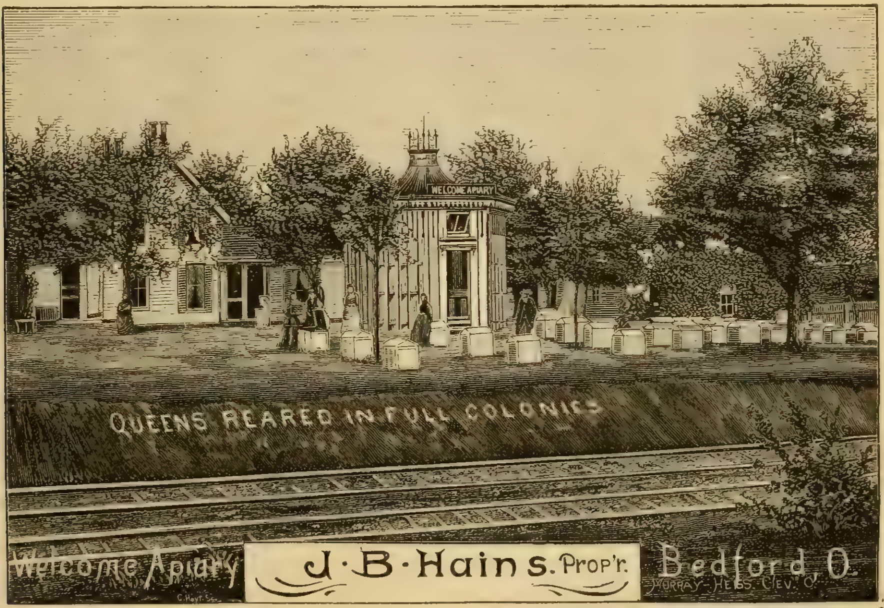
REPORT FROM WELCOME APIARY.

SIXTEEN YEARS OF BEE-KEEPING, AND A PICTURE OF FRIEND HAINES' BEE-YARD.

WELCOME APIARY is located in the village of Bedford, Cuyahoga Co., Ohio, on the Cleveland & Pittsburgh and Cleveland & Canton Railroads, both of which run through it, dividing it about equally—the east half only showing in the above engraving. It may be said to have been established July 4, 1844, when a fugitive swarm of bees clustered on a tree near where the house-apiary now stands. Being eleven years of age, I assisted in hiving and caring for them, and from that time they received box-hive attention—sometimes numbering a score or more, at others only two or three colonies, but never becoming entirely extinct.

In the spring of 1870, there being but three stocks, I transferred and Italianized them, and commenced bee-keeping on modern principles. I have tested nearly every thing said to be an improvement or a help in the business. I have retained only such as proved to be beneficial, among which I may mention movable frames, comb foundatian, honey-extractor, smoker, veil, slow feeder for spring and rapid feeder for fall, division-boards to contract brood-nest, and last, but not least, pure Italian bees in well-painted chaff hives, in the shade of trees.

Notwithstanding I have had uniform success in wintering bees in the house-apiary, I wish to class it among the things I do not recommend on the score of economy and convenience. I keep bees only in the south side, and it is more work to care for them than for an equal number in hives. You had better invest your money in chaff hives. I want no bee-bench, bee-shed, nor bee-house of any kind. I want no queen-excluding honey-boards, no sections larger nor smaller than one pound, no reversible frames. I fill my wired frames clear down to the bottom with foundation, and there is no necessity of reversing them to get them filled with comb; and if the honey in brood-combs is uncapped when the sections are put on, the bees will remove the honey as fast as the queen needs the room.


WELCOME APIARY
QUEENS REARED IN FULL COLONIES
Welcome Apiary
J·B·Hains.Prop'r.
Bedford, O.
C.Hoyt Sc.
MURRAY-HESS. CLEV. O.

APIARY BELONGING TO J. B. HAINS, BEDFORD, OHIO.

In addition to the apiary illustrated above, I have six others, in adjoining towns, aggregating about 200 colonies, and they are managed for comb honey principally, while my home apiary, which is kept as near a hundred as circumstances will permit, is devoted to queen-rearing and the production of extracted honey.

My winter loss in my home apiary is usually about ten per cent, composed largely of united nuclei. My report for the winter past is as follows:

Of 86 stocks on summer stands, lost 4; of 25 in house-apiary, lost none; of 18 in cellar, lost half.

I have purchased about as many bees as I have sold during the last sixteen years, in which time I have increased from 3 to 300 stocks. The largest yield of honey obtained from one stock in one season was 120 lbs. The average yield, year after year, has not exceeded one-fourth that amount. On the whole, I believe I have received just about a fair compensation for the money invested and the time devoted to bee culture, and am fairly satisfied with the result, as I expect to earn about a hundred cents to get a dollar out of any legitimate business.

Although this article is already too long, I wish to refer to one feature of the work in our apiary, and that is, it is largely done by women, which demonstrates that women can adapt themselves to the business, and become successful apiarists. Mrs. Hains and her cousin, Miss Bennett (who, by the way, are treasurer and secretary of the Progressive Bee-keepers' Association, which holds its next meeting in this place May 6th) have almost exclusive charge of the queen-nursery, as well as other departments of the work. Inexperienced persons would not hesitate to pronounce them wasteful in the extreme should they witness their selection, or, rather, rejection, of all small and medium sized queen cells—a rule which they rigidly enforce, believing that none but the most perfect are worthy to bear the title of royalty, and that, through careful selection, we may expect to come the nearest to realizing the hopes of all bee-keepers, which is, securing the best possible race of bees.

Bedford, Ohio, Apr. 1, 1886. J. B. HAINS.

Friend H., I am very glad indeed to hear that your apiary is managed by women. Perhaps this has something to do with the neat and tidy appearance it presents. I remember Mrs. Hains quite well; and, if I remember correctly, she does not look as if the duties had been so arduous or fatiguing as to wear her out, either mentally or physically. We should be very glad indeed to have some reports from either of the ladies. I fear we are not having so many communications of late from the other sex as we used to have in former volumes of GLEANINGS.

WINTERING BEES UNDER SNOW.

FRIEND MASON GIVES HIS EXPERIENCE IN THE MATTER, AWAY UP IN MAINE.

IN GLEANINGS of Apr. 1, J. H. Manning asks you if you have ever successfully tried the plan of letting bees be under the snow for two months or more. I have thought many times, while reading your advice on this matter, that I should like to know if you have ever thoroughly tried the plan of letting the bees be covered for three months with snow; and, if so, I have wondered why my bees fared so differently from others. I tried it for years, and made a loss every year, and every year I laid it to other causes, because I found it advised by what I regarded the best authority. My bees are so situated that they have good drainage, as you will see by looking at a picture of my apiary which I send you, with the exception of what few bees are in the sheds, which are shown in the picture. The bees are arranged on grades, one above another, running around a bank; those on the lower grade are all covered with snow first; those on the second grade are not covered so long, and those on the top grade are never covered at all, and always come out the best, and the second grade next, while the third grade always comes out damp, moldy, in a dying condition, or dead. Now, I have noticed this so many times that I am satisfied that covering with snow is an injury to my bees.

J. B. MASON.

Mechanic Falls, Maine, Apr. 5, 1886.

Thanks, friend M.; but I am a little surprised to receive these facts. Not only have I made it a practice all my life to leave all the snow just as it falls, but I have heard the same thing from so many other veteran bee-keepers that I supposed there was no doubt in the matter; and if snow does do harm, it is probably because you have it so much deeper than we do, and remaining on the ground so long a time. We seldom have the snow remain on the hives longer than a couple of weeks — sometimes, perhaps, a month; but very rarely so deep as to cover the hives as much as one week. Going around to the hives as fast as the snow falls is so much of a task that I think I should much prefer to set the hives up on high stands, or, better still, on high ground, situated as you suggest your upper row is.

OVERSTOCKING.

WHAT WE DO KNOW AND WHAT WE DON'T ABOUT IT.

I FANCY I hear the reader say, "You don't know any thing about overstocking;" to which I can retort, "Neither do you." I believe, however, it is a subject of very great importance, and, possibly, by talking about it, even if only to tell what we *don't* know, we may eventually learn something about it.

It is in the memory of many living bee-keepers, when it was very common for farmers and others to keep a few bees, so that, on a day's journey, many apiaries would be past, if from one to ten colonies could be called an apiary; but a collection of 100 or more was unknown. Now, however, one may make a day's journey and scarcely see a hive at any farmhouse by the way; but within a few years very many have made a specialty of the business, keeping fifty or more colonies in one place.

There are those who believe that, in the near future, bees will be principally kept by those who make bee culture a principal part of, if not all, their entire business. The tendency of the last few years has certainly been in that direction, and even now many a man is asking of himself, if not of others, "What is the outside limit, for greatest profit, of the number of colonies I can keep in my apiary?"

It is a very slippery subject. No matter how many facts we may gather, so great are the varying conditions that surround them that any positive, definite conclusion always evades our grasp. For instance, Bro. Doolittle (p. 13, GLEANINGS) gives some very interesting facts as to the product of his field; but as to his conclusions, there are a good many *ifs* in the way. He says that one year 500 colonies gave 15,000 lbs. surplus, and afterward 200 colonies gave 24,000 lbs. surplus; and from those and other data he deduces certain conclusions. Here are certain things that he *knows*, and he has the right to use them; but when he takes along with them something that he does *not* know, and uses it as fact, he vitiates his right to correctness of conclusion. The thing that he does *not* know, but takes for granted, is that the product of the field was the same each year. Just here is the great stumbling-block in the way of making any progress in the problem, just this variableness of seasons. He may say there was the same amount of bloom each year, but that doesn't settle it. Every observing bee-keeper knows that he can not tell by appearances the amount of nectar the bees can gather. One year I obtained over 16,000 lbs. of surplus; and another year, from about the same number of colonies, and with a better show of bloom, I got 2000 lbs. So we see how difficult it is to get at any thing tangible. Nevertheless, Bro. Doolittle's contribution is of value, and I presume he was as fully aware as any one of the difficulties of which I have been speaking. If we can get a great mass of facts bearing upon the matter, we may get some knowledge that may be of value.

I am not unaware that there are those who say there is no danger of overstocking, and even a few who insinuate, or say plainly, that there is no possibility of it. To these latter few, I want, in all kindness, to enter a most earnest protest against the utterance of any such sentiments. Please, brethren, consider the mischievous tendency of such talk. It may make no difference to you whether you are right or wrong. You have only a few colonies, and can be little affected by any view; but here is a man, limited in experience, who succeeds in getting a good crop, and reasons thus: "I may just as well have five times as many bees, and get five times the crop;" so, by increase and purchase, he starts the next season with a fivefold number, and, as a result, there are so many bees that the field barely gives them enough for their own support, and not a pound of surplus is obtained. If you say this is an exaggerated case, not likely to happen, let me give you what is likely to happen, and has happened.

Mr. Smith has an apiary upon which he depends for support. As nearly as he can decide, he has increased to the maximum number for greatest profit. Mr. Jones happens to live within half a mile or a mile of Mr. Smith, and, believing there is no such thing as overstocking, commences to build up an apiary. Every single colony Jones keeps is a damage to Smith; and if he increases to equal the number Smith had, Jones will himself make an ignoble failure. I have no desire to put a gag on any man's mouth to prevent his uttering his honest convictions; but I protest against any one of influence making a statement of a supposition as a fact, that he does not know to be a fact, when such statement may lead to damage and loss on the part of others. If any brother happens to have any clear conviction on the subject, with proofs to support it, by all means let such brother arise. There are a good many of us who will be glad to be convinced—our prejudices are all in that direction. I, for one, could afford to pay a man well to come and satisfy me that I can keep 300 colonies in one apiary, and realize as much profit from them as from a smaller number.

If I were asked to prove that 300 colonies in my apiary would be less profitable than a smaller number, I am not sure that I could do it, past all contradiction. I think, however, I could give some facts pointing in that direction. For instance, in 1880 I started with 200 colonies, spring count, in one apiary; took no honey to speak of (58 lbs.), and decreased to 162. Practically these bees secured honey enough for their own living, but no surplus. Am I not pretty safe in concluding that these bees got about all the field afforded? If I had had only 100 colonies, would they not have stored as surplus a large part or the whole of what the remaining 62 or 100 gathered for their own support? Another thing: There are a good many bee-keepers who have kept 250 or more colonies. Is there one of them who keeps 250 in one apiary? Does not each one show his belief in overstocking by the trouble and expense he incurs to establish out-apiaries?

We are still left to struggle with the question, How many colonies are required to overstock a given locality? or, rather, what is the number for greatest profit? What facts can we have bearing upon this? Bro. Doolittle has figured that 250 is the maximum number to be located within two miles of his house. This would allow a distance of four miles between the two most distant apiaries, and does not say how many might be kept in one apiary. About the most I can say very positively about my locality is, that in one particular year 200 colonies proved quite too many. What further light can we have?

THERMOMETERS.

The first thermometer you sent me was so long on the way it had time to get broken; though how it could be broken with such careful packing, I can not imagine. The second came very promptly, and is a nicer thermometer than I can buy here for the same price, and, so far as I can judge, just as good a thermometer as one which cost me 35 cents. Still, how do I know which is right and which is wrong? In the winter I keep four thermometers in constant use, and they vary about two degrees. Now, if I had one that I knew was right I could correct the others by it. Possibly, what I insist upon is impracticable and too expensive; but it is so desirable that I may be excused from further mention. If you, Bro. Root, can not buy accurately tested thermometers, get *one* in some way that you know to be correct. Then test others by it, and put in one lot those that prove entirely accurate. Perhaps another lot may be just one degree too low all through; but if the purchaser knows this he can make the proper allowance. Another lot may gradually change from being correct at 20° above to being too high or too low at some other point. Now, put price enough on these to pay for all trouble, and, if necessary to put on treble price, I don't think many of the correct ones would stay on your hands. We want some place where we can all buy thermometers, and *know* something about them.

C. C. MILLER, 340—324.

Marengo, Ill., Apr. 5, 1886.

Friend Miller, I think I can give you another fact in this matter of overstocking. With 300 or 400 colonies in our locality each summer, even though many of them are queenless, and consequently not full of populous colonies, our locality is all the while overstocked. No one can keep bees within a mile of us to any profit. They have tried it repeatedly, and I think they have all given it up. During great yields of honey they might do tolerably well for a little time; but in the end they decide it doesn't pay. For the same reason, honey-dew does us very little if any damage. There are so many mouths to feed that they use up the honey-dew, and almost every thing else, as fast as it comes.—In regard to thermometers, the manufacturers are now at work at a lot of standard tested thermometers, made especially for us. You may not be aware that the usual way to test thermometers is to try them at the freezing-point and at the boiling-point, then take it for granted that they will be right at other points. Now, although all show alike at these two extremes, they may vary considerably at other points. For instance, when it gets to be 20 below zero they won't tell quite the same story; and they may also vary some at ordinary summer temperatures, say 70 or 80 degrees. These new ones are to be tested at four different points—one down below zero, one at freezing, one at 60 or 70, and at the boiling-point. The price will be 35 cts. each. Besides the above tests, the scale will be longer so the degree-marks are more easily seen than the common ones. We have not yet decided whether they can be safely sent by mail.

FRIEND VANDERVORT'S HOUSE-APIARIES.

FRIEND WRIGHT TELLS US ABOUT THEM.

FRIEND ROOT: I have just received a card, asking me to tell you about friend Vandervort's house-apiaries. I will try to do so as best I can. From what you have said, I think that you have a very incorrect idea of friend V.'s house-apiaries. They are made very cheap. I don't think that they will cost to exceed one dollar per colony for the number of colonies to be kept in each house. The house is made in sections; the walls are double, and are packed with four inches of sawdust all around, under the bottom and over the top. The house can be taken down, loaded on trucks, and taken anywhere you wish to have it. First take off the top, then the sides and ends, and your house is ready to move.

Friend V. was moving one of his house-apiaries when I was there. For a house to hold 40 colonies, the house would have to be about 8 x 16 feet, and 7 or 8 feet high. There are two rows of hives on each side of the house—one on the floor, and one on a shelf about 3 feet high on each side. The house is nearly full. There is no place to store or extract honey. Above each hive there is a pigeon-hole, or air-hole, about six or eight inches square. These are opened and closed by a slide door; when it is cold, these are kept closed; and when it is hot, they are kept open. Friend V. tries to keep the temperature at a point where the bees can build comb, and evaporate and seal up honey at all times during the honey season, and at the same time keep it low enough not to excite the swarming fever. He said he had not lost a dozen swarms from these houses by absconding, in ten years. If a cold storm lowers the temperature, friend V. drives at once to his house apiaries and closes the little doors; when the temperature rises, he opens them again. He uses nine-frame hives; the frames are about the same depth as the Simplicity, but one inch longer. I believe he takes all of his honey in 2-lb. sections. He uses a case something like the Heddon, except that he uses separators, and has no partition between each row of sections. The sections rest on a tin made like an inverted T, thus: ⊥. The sections rest in the corners, and the separator rests on the knife-edge; one tier of sections is put in, then a separator, and then another tier of sections, and so on until the case is full; then a false side, or follower, with two steel springs, is put in. These springs press every thing tightly together. The case is placed on the hive so that the sections are right over the frames, and the space is often built full of brace-combs. These, friend V. carves off with a long knife. This would be distasteful to me, but he seems to enjoy it; and as long as he gets the honey, I suppose we have no right to complain.

You spoke in your foot-notes to Bro. Clarke's article, about bees getting on the floor. They do get on the floor, and die there—lots of them; but friend V. has got used to walking over dead bees, and doesn't notice them. I was there in April, and the bees in these houses were so strong that they were building bits of comb; and in some hives the bees were actually crowded out. No honey is ever taken out of the cases at the house-apiaries. The cases are taken to the honey-house at home, the honey removed, the cases refilled, taken to the house-apiaries, and put on the hives. If I remember correctly, friend V. told me that he preferred to work his bees in chaff hives out of doors; but this he can not do away from home, on account of thieves. They have tried to break into these houses; but when I was there they had not succeeded in getting through to the bees, although they had damaged the houses some. I stated that the houses were made in sections. I will say that it is not necessary to make them so, unless you wish to; and if I were building one for myself, I would build it solid, just like any other building.

If the above is not plain, and you don't understand it, I will answer any question you may ask.

GEO. A. WRIGHT.

Glenwood, Susq. Co., Pa., Mar. 12, 1886.

Many thanks, friend W., for the information you give us. You say no honey is ever taken out of the cases at the house-apiaries; but how does friend V. get the *bees* out? This point has been one of the great troubles in planning expeditious work in the house-apiary. I have suggested letting the cases of honey be until cold weather drives the bees down into the brood-chamber; but the honey gets badly soiled or darkened by so doing. I should think it would keep friend V. pretty busy, driving to these house-apiaries and moving these little slides, every time the weather changes. Can't he have an automatic regulator that would work them the same way that we see the dampers of some stoves operated by the contraction and expansion of a bar of metal? You see, I am first on this invention, do you not? We should be very glad to have friend V. himself tell us something about how he works, and the immense crops of honey he gets.

PROVERBS FOR BEE-KEEPERS.

BY REV. W. D. RALSTON.

THE ways of bee-keeping are not all ways of pleasantness, nor are all the paths thereof the paths of peace.

2. Man is to eat his bread in the sweat of his face, and there is no exception made in favor of the bee keeper.

3. To work successfully a man must work wisely. To work wisely with bees, one must know their nature and habits; these can be learned only by careful study and observation.

4. We live in progressive times, and the true bee-keeper must be progressive.

5. In bee-keeping, as in other things, the diligent are crowned with success.

6. The obstacles in the way of successful bee culture are, ignorance, carelessness, being too eager to increase the number of colonies, and *cold winters*.

7. A fair knowledge of bees, faithful attention to the apiary, and a thorough and timely preparation for the honey-flow, swarming, and wintering, will make any man or woman a successful bee-keeper.

8. A tyrannical Pharaoh demanded of his workers the full tale of bricks, but furnished them no straw. Do not demand from your little workers the full tale in pounds of honey, when there is none in the fields, or when you reside in a region poor in honey-yielding plants.

9. Carefully lay up your honey-crop where thieves (*especially robber bees*) can not break in and steal, and your empty combs where moth worms will not destroy them.

10. Profitable bee-keeping greatly depends upon a gathering-up of the fragments, that nothing be lost. Fragments of time can be used in caring for bees, fragments of lumber in making hives and frames, fragments of combs for wax; and every drop of honey is useful; even though mixed with dirt, it can be fed to needy colonies.

11. Some bee-keepers seek their profits in raising bees or queens to sell; but remember, that the true aim of bee-keeping is to supply our markets with delicious honey.

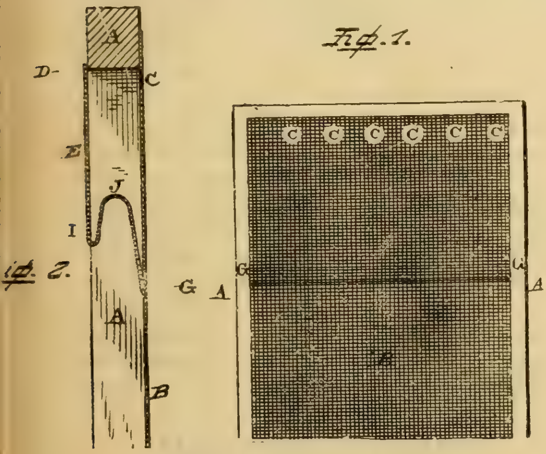
12. Live not for self. Make your knowledge profitable to others seeking to learn bee-keeping, that the coming generation of bee-keepers may excel the present, increasing in numbers and in knowledge, until every pound of honey secreted by the unnumbered flowers of our land is gathered.

Hopkinton, Iowa, March 8, 1886.

AN IMPROVEMENT ON SCREENS FOR KEEPING OUT FLIES.

ALSO SOMETHING FOR BEE-KEEPERS TO PUT ON THE WINDOWS OF THEIR HONEY-HOUSES.

WIRE cloth over the windows and doors is a grand thing, as everybody can testify who has tried keeping house with and without it. But suppose the flies all get on the window and stick there, what then? Over at our house the women-folks take a cloth and beat the poor insects to death, and then tumble them outdoors, maimed, sick, and wounded. It is hard, I know; but then, "flies have no business to be flies." We can not have our furniture all spotted and specked up, nor have our ears and noses tickled when we want to take a nap after sunrise on a June morning. Well, our enterprising friends of the Hub Manufacturing Co. have got out a little device that costs only 10 cts., which lets the flies outdoors just as fast as they want to get out, but it does not let them come back again.



WELLS' PATENT WINDOW-SCREEN.

Figure 1 shows the screen as it is seen from the outside. Figure 2 shows a sectional-end view. Perhaps I might remark here, that the engravings are not very good, and that they were not made by *our* engraver. The machine that is offered for sale for 10 cts. is shown by E, I, and J. It is a strip of wire cloth as wide as the window, and bent as shown above. At J some round holes are punched in the wire cloth, big enough to let a bee or a fly get through; then up at the top edge of the outside screen some more holes are punched at C. The flies buzz along up the screens until they get to J, when they crawl through the holes made on purpose, and, finding themselves "in a box," they hasten to get out at C. We have not yet had an opportunity of trying it with bees, but there is hardly a question but that it will work all right. We have them in stock, ready to ship, three different widths, 26, 28, and 30 inches. They can be sent by mail safely for another 10 cts. Printed instructions, for fastening them to window-screens go with them.

HONEY VERSUS SUGAR FEEDING.

SOME PITHY REMARKS FROM FRIEND SMITH.

FRIEND ROOT:—On page 97 of GLEANINGS, Mrs. Harrison, I think, gives us her honest convictions in regard to the honey and sugar question; and (allow me to consider that you are the president) I would heartily say "aye" to her article in *general*, and to her resolution in *particular*. But the expression, "Now let us feed our bees the dark, rich, good sweet honey, and not depress the market with it," I object to, and upon these grounds:

1. Because I can not winter bees successfully on late-gathered stores which are composed of this "rich, dark" honey.

2. I have no difficulty in selling, at good prices, all of my buckwheat and goldenrod honey. In fact, eight out of every ten of my customers prefer it to either clover or basswood honey, even at the same prices.

She also writes, "Now, it is advocated to take away the honey from the bees, and give them sugar syrup instead, benefiting the sugar market to the detriment of honey. Are we going to teach the bees that their own production is not fit food for them, thereby?" etc.

I should like to ask how the purchasing of sugar is to injure the honey market; that is, in the manner that Mrs. H. concludes it does. If you take 1000 lbs. of honey from your bees and replace it with sugar syrup, to be sure you help the sugar-trade; and if you sell this honey for home consumption, the way that all honey should be sold, why is it not a benefit to the public and to the honey-trade? I think we never shall see the day when honey is to take the place of sugar in the markets.

As to "teaching the bees that their own production is not fit food for them," how about "honey-dew"? Does not Mrs. H. advocate teaching the bees that our modern movable-comb hives are better adapted to their needs than the trees which nature provides? Why not the same, then, in regard to their food? When man finds that well-sealed sugar stores are better for the bees than poor honey, why should he hesitate to feed it?

I bought my granulated sugar at 7 cts. per lb. by the barrel, and, of course, it did not cost me much over 6 cts. per lb. when made into syrup. I did not sell a single pound of dark honey less than 9½ cts. per lb., and I did not peddle it either. Moreover, I had to buy several lots of my neighbors to supply my customers. Now, I claim that I received enough extra for my honey to defray the expense of feeding, besides having swarms in better shape to go into winter quarters.

In the article following Mrs. Harrison's, Mr. Wright says: "It is very embarrassing to me when I go to the city to sell honey, and begin to show my samples, to have the merchant look up, with significant grin, and ask me what I fed my bees." Now, I have had the same question asked me by merchants and consumers a score of times; but I can assure you that it did not embarrass me in the least. I always tell them that I make a *practice* of feeding *pure granulated-sugar syrup*, and that I will give them fifty dollars if they will prove that there is one ounce of said sugar in my *honey*. My sales of honey, and the prices that I received this season for the same, will bear me out in saying that the "feeding business" does not injure my honey-trade.

I believe, as does brother Root, that if we must feed sugar we should educate the public to it, and not conceal a single action in regard to it. Perhaps Mrs. H. and Mr. W. meant their remarks for their immediate localities; if so, then they will pardon my seemingly hasty criticisms.

In concluding this article, allow me to say, Bro. Root and others, that if you are "riding the sugar hobby," just stick to the saddle until you are *sure* that you are wrong, then dismount.

Pittsfield, Mass., March, 1886. CHAS. H. SMITH.

Below we give a communication from another friend, on the opposite side of this subject.

FEEDING SUGAR INSTEAD OF HONEY, WHEN HONEY CAN BE PURCHASED AT 40 CTS. PER GALLON.

A. Wright speaks, on page 98 of GLEANINGS, in regard to feeding our bees sugar syrup, and thus building up the sugar-manufactories at the expense of the poor apiarists of America, by using and advising the use of sugar in feeding our bees, instead of giving them their own natural production, honey, when they require to be fed. Is it possible that we can produce any article of food for bees that is superior to their own natural product, honey, to sustain life and bring them through winter in a better and more healthy condition? I should say, it is not possible. Is it a fact, that artificial food is better than their natural production, honey? If so, why? Certainly it is not so according to the law of nature, in any other one thing that I know of.

There are many points in friend Wright's letter that we as bee-keepers should earnestly consider; and it is necessary that we should do so in justice to ourselves and to one another. We are forming a "Protective Union" against such things of oppression as come through legal prosecution, and why not in this matter of feeding bees, by using honey instead of sugar, thereby opening an additional market for the disposal of *thousands* of *pounds* of honey where sugar is now fed, and thus very naturally assist one another? for where some of us have to feed, others of us have *honey for sale*, and for which we are trying to create a market for its disposal, instead of utilizing such an extensive opening for the disposal of it among ourselves as is given us by force of circumstances and nature, and which is being fast yielded up to the sugar-manufactories, while we seek other openings ahead.

I have already fed 250 lbs. of granulated sugar since January 1 to my bees, owing to their very weak state and small stores, caused by having run the most of them in the queen-rearing business quite late in the past season; still, they have not more than half enough stores to carry them through to spring; this sugar cost me 8 cts. per pound, and I used it, too, after having the offer of squeezed honey at 60 cts. per gallon (squeezed honey is that which has been squeezed from the combs by hand, balling it up and squeezing with the hands, the only method that is practiced here in the South where box and gum hives are *exclusivly* used). Why did I do this? you ask. Simply this: The sugar is here at hand, while the honey is 70 or 80 miles off; and rather than order it and wait, I used sugar. Now, since considering this matter, as I take it, in its proper light, I shall send and get the honey, and not use any more sugar to the exclusion of honey, thereby affording a sugar-market among *ourselves* to the exclusion of *our own* products. No, sir!

Now, friends, let me give you a few facts. There are quantities of honey sold in E. North Carolina —squeezed honey, at from 40 to 75 cts. per gallon. Last summer, several parties I know of went to Wilmington, N. C., to dispose of a barrel of honey each, and they were offered only 40 cts. per gallon for it, and but little sale for it at that. It is retailed by the gallon at the producer's door for 60 cts. per gallon. Now, what need to feed sugar, is there, since this honey can be bought and put at your door for less than sugar is *now* at its very *lowest cost*, while these prices, as given for honey here, do *not fluctuate*, as does the price of sugar? This state of things will bear serious consideration, and a change, if we desire to assist ourselves and one another too, and aid the bee-keepers in being successful apiarists. 4—ABBOTT L. SWINSON, 71—66.

Goldsboro, N. C., Feb. 5, 1886.

The opening article answers you in part; and another thing, friend S., a pound of granulated sugar makes more than a pound of syrup as thick as honey; and, again, I think I am correct in saying that it goes further, pound for pound. Sugar syrup is pure sugar. The honey gathered by the bees is not only grape sugar, a large part of it, but it contains gummy matter and a great variety of foreign substances. You have yourself also given one powerful argument in favor of sugar. It is always to be had at your nearest grocery or country store, at about its actual cost, while the honey is a good way off, as in your case. In your opening paragraph, you speak of the honey being the *natural* food of the bee. I don't believe it is worth while to quote nature very much. Nature's way would be to let our cows go without milking, and to let our hens go without gathering the eggs. We are assisting nature at every step—or, if you choose, improving on nature's process. Modern bee-keeping is almost all — *unnatural*.

REVERSIBLE SIMPLICITIES.

FRIEND SHUCK'S EXPERIENCE IN THE MATTER.

I WISH to add to the remarks of Hemphill & Goodman, in GLEANINGS for March 15, that I used substantially the same thing as much as eight years ago. I advertised the hive for *sale*, and applied for a patent on it more than a year ago. In order to make this form of hive as practicable as possible, I fill the trough in the metal frame-supports with strips of wood, thus converting them into the old-fashioned rabbet (metal rabbet, as generally used in this connection, is a misnomer; they are not rabbets any more than they are O. G. moldings), so that when propolized they will stand firmer than when on the thin edge of the metal supports. I then put strips across the top of the frames near each end of the hive, that are just as long as the hive is wide inside, and just thick enough to come flush with the top edge of the hive body. On top of this I clamp my invertible top-board, and the arrangement is perhaps as perfect for inversion as this form of frame can be made. I hope everybody will try this, if only to note the horrid deformity of the ordinary hanging frames when inverted. They look well enough when well made and properly spaced, if you view them only from the top; but to turn them over and take a peep at the other side is discouraging, to say the least. I always want to turn it back and try it over again.

As a complete invertible hive it has the disadvantage that it may be wrong side up when the frames need handling, and must be righted before you can take them out. The hive can also occupy but two positions—right side up and the reverse. A complete invertible hive possesses the most advantages which can occupy four positions, either of which can be given it in a moment, and without inconvenience to either the bees or their keeper.

J. M. SHUCK.

Des Moines, Iowa, March 20, 1886.

Friend S., you have hit it exactly, in saying that the appearance of a Simplicity hive, or any hanging-frame hive, is just awful when turned over and you take a view of the bottom-bars as they appear when turned uppermost; and I felt just as you did, that when I got it upside down I felt anxious to turn it back again right side up. We, however, put some cinders and sticks between the frames where they pressed together, and with a little pains made it look tolerably presentable.

TEMPERATURE OF BROOD-NEST.

WERE DOOLITTLE'S EXPERIMENTS ON PAGE 191, LAST YEAR, IN ASCERTAINING THE TEMPERATURE OF A COLONY IN WINTER, FAULTY?

ON page 43 we find, among others on the subject of "upper absorbents," the assertion that "moist air is heavier than dry, especially when cool." I wintered about 25 colonies on summer stands during the winter of 1883-'4 in my Climatic chaff hive. They stood close together in one row, facing east, with a tight board fence on the west, and stable on the north, with temporary board roof. I had tight-fitting division-boards on each side of the brood-nest, with a chaff box on top instead of cushions. That part of my hive which incloses the brood-nest (first story) is chaff packed, each end being four inches thick, the end walls and division-boards extending one inch above brood-frames. This gives my chaff box, or cushion, a drop of one inch to act in conjunction with chaff walls of hive in retaining heat.

My boxes used that winter were made of inch pine, bottom of burlap, and filled with about seven inches of wheat and oat chaff, and the box set down on the nine brood-frames; the box fit close (as you can make wood fit against wood) to the one-inch projection of end walls and division-boards, as above explained. The entrance I left open and kept free from snow; the cover, or cap, had a 1¼-inch hole covered with wire cloth in each end. Now comes the test of the scientific assertion, that "cool moist air is heavier than dry." In the spring, upon examining these hives I found the majority, if not *all*, as nearly as I remember, of the chaff boxes with an average of *2 inches of wet, moldy* chaff on *top*, and the rest of the chaff, four and five inches down to the bees, nice and dry; and in hives strong in bees, the chaff was warm toward the bottom. I had a clustering-space under the burlap bottom. I have discarded the boxes, and use, instead, cushions, pretty thick, with a Hill device sewed fast to the under side of cushion. The cushion and device can be stored away each spring together, without separation. I use the cushion instead of the box, for the reason that a cushion can be made to fit *snug* all around in the one-inch drop alluded to, where the wooden boxes would allow heat to escape.

Now, I believe, from my experience so far, that a cushion about 8 inches thick, or thicker, made to fit *close*, with a clustering chamber under it, and the entrance left open, will allow of a *slow* draft, insufficient to carry off enough heat to be detrimental to the bees, yet causing the excess of moisture to be carried and deposited partly on the *upper* surface of the chaff, and part escape through the holes in the cap.

About my first experience with bees was some eight years ago. I tried to winter a few in American hives, by covering them up so snug and *thick* on the frames, with pieces of carpet and cloths, that the moisture *failed* to escape, and two out of three, I believe I had then, I found so wet that combs and bees were in a kind of "mush," too dead to make "wax." I do not understand why any one can object to upper absorbents, if the cushion is arranged to retain the heat to fit down close, and put on early enough so the bees may wax it fast.

I examined a number of colonies this week, temperature about 10 above zero, and found, in every one at which I peeped hastily, the bees clustered in the chamber made for them under the cushion.

I was thinking, a few days since, that if we could make a chamber large enough to hold a good colony the shape of the shades found on our parlor hanging-lamps, which are dome shaped, with a large opening in the top, as in the shade, and cover the whole with a *thick* chaff cushion, and let the moisture escape through the opening into the chaff cushion, it would insure almost to a certainty their wintering, as the bees could be *all* in *one* cluster, and the heat thus generated would defy our severest winters.

We can not winter bees successfully where the cluster is separated by one or more combs of honey, as must be the case where wintered in the brood-nest; not enough bees can cluster between two combs to stand our severe winters. If the above "shade" chamber were made out of some light material, like the wooden butter-plates found in our groceries, and thickly perforated with about ½-inch holes, then pour around it about 20 lbs. of "Good" candy, leaving the center open as in the shade, for the moisture to escape into the cushion, which would *completely* cover the chamber, sugar and all, it would, I believe, be an excellent house to winter in; the walls of said house would be "around and about them," and the bees could "just sit around" and lick the sugar when and where they might choose.

THE NORMAL TEMPERATURE OF A COLONY IN WINTER QUARTERS.

On page 191, in your foot-notes you say that disturbing the bees would cause the temperature to rise rapidly, and that you do not quite see that Mr. Doolittle had settled it; also, on page 91 our hibernating friend Clarke says, "Mr. Doolittle's experiments prove the extreme difficulty, if not utter impossibility, of ascertaining the normal temperature of the interior of a bee-cluster; for the moment the bees are disturbed and excited, the heat begins to increase." Now, I think you and Mr. Clarke a little premature in your decisions, as well as Mr. Doolittle's conclusion, the first day he drew the thermometer out from that cluster; for, notice, he left it in from 4 P. M. until the next morning; and in taking it out the act was so quick that the temperature did not rise from the disturbance caused at the moment of opening; the heat could not rise and affect the thermometer in the short time it would take him to reach in and pull it out. The bees surely had settled into their natural quiet state during the interval between 4 P. M. and the following morning.

In the second experiment, when five days intervened, in which the cluster would surely assume its wonted quietness (and Mr. Doolittle would not tarry when pulling out the thermometer, but he no doubt reached in and lifted it out *immediately*, and cast his eye as soon as possible on the instrument, before a moment's time could lower the temperature), would the bees have time, I should like to know, in the moment of time consumed, to affect the thermometer? I can not see it. Then, again, his thermometer gave the *coldest* point reached in the cluster during the five days, which was 63°. They were not disturbed while registering the above 63°. Why not, for that size of colony, in *his* make of hive, put the normal temperature at 63°? How can it be otherwise, when they had five days to cluster around the graduated part of the thermometer (which Mr. Doolittle inserted), and register *undisturbed?* The 63°, I claim, was the normal temperature of the cluster; for after the bees cooled down after inserting the thermometer, the cluster entered into a normal state, and the temperature would naturally be the lowest—i. e., 63°, during the cluster's five days of quiet.

About four years ago I spread my brood-nest in the center, giving about 1½ or 2 inches space between the two central combs for clustering. One day, when ½ degree above zero outside, I inserted a thermometer quickly in the space above mentioned—not among the bees, as the cluster was at one end of the hive, and I hung the thermometer at the other, where a few scattering bees were, taking it out when but a little time had expired (a few hours). The temperature had raised to 80° (summer heat). The hive was my Climatic, as described further back.

Two days ago, in same make of hive, I placed the thermometer (which hung outside, and registered 2° below zero) under the cushion, in the clustering-space under the Hill device, allowing the lower end of the thermometer to just touch the cluster and extend "out in the cold." I left it in only about 15 minutes, and it registered 40°. Two hives treated this way registered the same. In the first experiment I think I took the thermometer out too soon; the rise in temperature was caused, no doubt, by what little I disturbed the bees. The second I did not give enough time for the thermometer to register even the abnormal heat.

I am only an A B C, and have doubtless been presumptuous in the foregoing; but I wish some veteran would presume to prove me mistaken. School is open at all hours, and we are willing to learn. We little ones will throw stones now and then, but we will take the consequences, and probably learn something. WM. M. YOUNG.

Nevada, Ohio, Feb., 1886.

Friend Y., I can not see that your experiment particularly touches the question of the weight of damp air or dry air. The moist air ascended and dampened the chaff in your hives, because the air was cold outside and warmer inside, which always produces an ascending current. In regard to the temperature of the brood-nest, see the following article.

WINTER TEMPERATURE OF BEES.

FURTHER EXPERIMENTS IN THE SAME DIRECTION.

IN Mr. Clarke's article, p. 91, in reply to Mr. Doolittle, he endeavors to substantiate his hibernation theory. It seems presumptuous for me to cope with such able writers as Mr. Clarke and Doolittle; but, according to my observations, they are both somewhat in error in some of their conclusions; and I think that, by the time I am through, I can unsettle Mr. Clarke's hibernation theory considerably.

I infer, from Mr. Doolittle's article, that his experiments were conducted in the latter part of January and the first part of February; and he also had the benefit of colder weather than I did. But according to my experiments, a fall in the outside temperature does not always produce a corresponding lower temperature in a cluster of bees that is undisturbed, but, rather, the contrary, especially when taken at different times on the same day, as the following tables will show.

I am inclined to think that Mr. Doolittle's figures are too low, though different localities and different circumstances *may* cause a difference in temperature. If 15° of change in outside temperature, as Mr. Doolittle says, make one degree in the cluster, an outside temperature of 75° would give only 69° in cluster, which I think much too low. Is it not possible, Mr. D., if your thermometer is as long as the average one, that, when it was suspended between the frames, the bulb was situated almost at the lower extremity of the cluster? A common thermometer is about 7 inches long; and, if suspended the entire length below the cushions, would extend within two inches of the bottom of the frames; and as the temperature certainly decreases from the center of the cluster to the outside, is it not probable that your figures are too low?

The following series of experiments were all taken from one hive, though *partially* verified by experiments with other hives. The hive selected was one of my best hives, with the usual chaff cushion, and situated in a row of hives which stand about 8 inches apart. The spaces between, and about 6 inches at the back, are packed with straw, and over all is a temporary roof. I used a common thermometer by slipping the graduated scale, with the tube, out of the case. I then cut a slit in the mats (two of which were used, as one was gnawed full of holes), just large enough to admit the thermometer and hold it in its place when slipped up or down. It was then placed in the slit (without disturbing the frames), with the upper end extending about 3 inches above the frames, over which an inverted tumbler was placed, and the cushion over all. By raising the tube ½ to 1 in., the temperature could be seen at any time, and disturb the bees but little. The observations were taken about sunrise, unless otherwise designated; at noon, when it was possible for me to be at home at noon; and at night. I placed the thermometer in the cluster Feb. 9, and have the following results:

Feb. 10	Clear	Outside temp.,	33°	Inside temp.,	53°
" 11	"	"	40	"	62
" 12	Rainy	"	50	"	66
" 13	Damp	"	38	"	58
" 14	Clear	"	39	"	57
" 15	Showery	"	37	"	58
" 16	Clear.	"	22	"	47
" 17	"	"	16	"	39

At this point the hibernation theory had taken pretty firm hold on me, and I had begun to believe that the temperature of the bees *did* sometimes fall below the freezing-point. But, still having doubts, I investigated, and found that the bees had changed their positions, on account of the foreign substance in their midst, and left the thermometer fully two inches from the cluster, where it had doubtless been during the whole time. When it was again placed in the cluster, with the temperature outside at 16° above zero, it arose almost immediately to 80°; and, before closing the hive, it registered 96°! This knocked the hibernation theory out of me so completely, that it has never returned. The above table shows that the temperature outside the cluster averages about 25° above that of the outside air. The bees behaved themselves tolerably well after this, with the temperature ranging as follows:

Date.	Weather.	Time of day.	Out-side air.	In clus-ter.
Feb. 18	Clear.		27°	78°
" 18	"	Noon.	50	74
" 18	"	Even'g.	50	76
" 19	Cloudy.		40	72
" 20	Windy		15	76
" 20	"	Noon.	22	69
" 20	"	Even'g.	24	79
" 21	Cloudy.		26	65*
" 21	"	Noon.	36	64
" 21	"	Even'g.	38	74
" 24	Clear.		24	74
" 25	Rainy.		44	80
" 25		Noon.	53	75
" 25		Even'g.	40	75
" 26			15	79
" 26		Noon.	23	73
" 26		Even'g.	28	76
" 27			14	72*
" 28			18	72*

* Near outside of cluster.

Owing to the varying position of the center of the cluster, some observations are a little irregular; but I think those taken on the 18th, 25th, and 26th, are very nearly correct. You will notice one thing peculiar; that is, that the temperature is highest in early morning, lowest at noon, and intermediate at evening. This seems contrary to the natural order of things; but all my experiments in *cold* weather tend to confirm the above results. For some time I was at a loss to explain this singularity; but I have arrived at the following conclusions:

The colder the weather gets, the more closely the bees will pack themselves, and the harder will the outer bees crowd for a warm corner, making, on a cold morning, a knot of bees so dense as to be impervious to cold, and which retains nearly all the animal heat generated, thereby maintaining a high degree of temperature. As the day advances, and it grows lighter and warmer, the cluster relaxes and unfolds itself more or less, to make motion possible inside the cluster, in order to obtain their daily rations (and I think they are in almost daily need of food), so that they may be able to withstand the cold of another night. This, of course, would produce a lower temperature.

Then, if bees hibernate at all, they must do so at high temperatures; that is, the higher the temperature of the cluster, the more complete is the hibernation. I forgot to say, that the colony was examined about a week after the conclusion of the experiments, to ascertain whether or not it contained brood, and I found only a patch of eggs, about the size of a dollar.

THE CHAFF HIVE.

In friend Bish's communication, page 128, 1886, he says that I proposed to change the inside dimensions of the chaff hive; but, if he will refer back to my article (page 12), he will find it to the contrary. But, friend Root, *why not* change the dimensions, making the hive ¼ inch longer from back to front, in upper story, thus making it possible, with the ample space at the sides, to use a Simplicity body in the upper story? I think such a change would be received with great favor by bee-keepers in general. It will not interfere with the usual management of the hive, as the tin rabbets may still be put in their places, and the wide frames may at any time be used in the usual way. I think, then, that the chaff and Simplicity hives will make a perfect system of hives, as the different parts of each will be still more interchangeable. As you know, it is a great advantage, when a swarm issues from a hive, leaving incomplete sections, to be able to place the story bodily on another hive; but if you wish to change to a chaff hive, you have to pull the frames all apart and handle them separately.

I have about concluded to change the inside dimensions ¼ inch in the hives I make in the future—at any rate, for my own use. This increase in length will necessitate no increase in the length of the siding, but only a few minor changes, which will cause no trouble or extra expense on the part of the manufacturer.

E. E. CROSS.

Racine, Meigs Co., Ohio, March, 1886.

Friend C., your experiments seem to be quite conclusive, and are doubtless right.—I do not know of any reason why the chaff hive should not be made so a Simplicity may be set down inside of it. We used them this way some years ago, but it seemed to be so difficult to set the Simplicities in and set them out again that we abandoned the plan, and the chaff hive was contracted in the way we make it now, because there seemed to be no object in making it large enough to admit a Simplicity.—And now, friends, as winter is gone and summer is near, shall we not drop the subject of wintering, temperature, etc., for the time being?

WHERE DOCTORS DISAGREE, WHO SHALL DECIDE?

DOES THE ADDITION OF MOISTURE TO A GIVEN VOLUME OF AIR INCREASE OR DECREASE ITS SPECIFIC GRAVITY PER CUBIC FOOT?

IN the *Scientific American* for March 13, a querist, whose initials are "J. A. G.," asks as follows:

> 1. Is it true, that moist air is lighter than dry air at all temperatures?
>
> 2. Is not moist air that is cooled to the dew-point heavier than unsaturated air at the same temperature?

The *Scientific American* replies to the first question:

> Moist air is always heavier than dry air at the same temperature.

And to the latter,

> Yes.

Now, then, Guyot's Physical Geography contains the following paragraph in regard to the distribution of vapor in the atmosphere;

Water, whether in the sea or on land, is slowly transformed into invisible vapor, which, being much lighter than air—as 3: 5—rises, and is diffused through every part of the atmosphere. Thus the latter becomes the great reservoir of aqueous vapors.

My opinion is, that the *Scientific American* has made a mistake, or that they haven't got hold of the question asked by J. A. G. And, by the way, is it not our bee-friend J. A. Green who propounds these inquiries? If invisible vapor is lighter than air, to the extent of the proportion of 3 to 5, no wonder it rises and forms clouds. It may be said, the vapor rises and not the air, but I think this can not be true.

BUILDING UP A BEE-RANCH.

HOW IT WAS DONE IN CALIFORNIA.

IN November, 1883, I was teaching school near the central part of Ventura Co., in Southern California. Three seasons before, I had purchased an apiary which I ran for two years, and then sold out. Some of my neighbors, knowing I was interested in bees, offered several colonies to me at my own price. I paid from $1.00 to $1.10 apiece for fourteen colonies, returning the hives. I afterward purchased six more, paying 100 lbs. of honey for each colony when the original colony would make it. These last were bought after it was certain the season would be very good. I took out over 300 lbs. per colony, and increased my bees to 120 colonies in the spring of 1884. This honey, most of which was very fine, I sold at 4, 4½, and 5 cents per lb., net. Before the honey season was over I was obliged to move my bees out of the valley, on account of the fruit, the danger to teams, etc. The weather was so warm, and the roads so rough, that I lost 10 colonies in moving them about 20 miles.

The next year I took out about 40 lbs. to the colony and increased only 17 colonies. This was a poor yield. But very few bee-keepers made any honey last year. This year every thing looks as favorable as in 1884. My expenses so far have been for hives, which cost me about $1.50 each; a honey-tank, holding 3 tons, cost me $25.00; an extractor, $25.00; a honey-house, 16×16, two stories, $160, and honey-knives, smokers, wheelbarrows, heaters, foundation-machine, etc., about $50 more; so at the end of this season I shall have, probably, 200 colonies and $600 invested in the apiary and fixtures. With six years' experience, I can say that this investment will yield me on an average about $600 a year above expenses (not reckoning my own labor). I do not believe it will be profitable to keep more than 200 colonies upon my range, though there are places where they keep three or four times as many, and average ten or twelve tons of honey a year.

In 1883 I looked around for a place where I could both keep bees and raise fruit. After many days' hunting in the mountains I found a cañon a mile or more long, about 1500 feet above the ocean, and 15 miles inland. There are about 120 acres of plow-land in the cañon, or little valley. The soil is very rich, and the surrounding hills are covered with alfileria, mustard, sage, clover, and other flowers. The feed is very fine for stock, but there is neither wood nor water on the place.

I rented the place to a new comer, agreeing to build him a cabin and give him all he could make upon the place for plowing the land and taking care of my young trees. I put out 14 acres of fruit-trees, at a cost of about $30.00 per acre, planting apples, peaches, plums, prunes, apricots, pears, almonds, and nectarines. Trees mature so quickly here that mine, planted in March, 1884, produced some fruit last year, and this year are so full of blooms that I expect several tons of fruit. The value of what an orchard will yield each year in California is estimated at from $100 to $2000, the smaller number being usually much nearer the truth. The profits from orchards are often given, as with bees, by taking one tree (one colony) and calculating what 100 to the acre would yield in like proportion.

1885 was a dry year. To the first 160 acres I took up as a timber-culture claim, I then added 160 acres more as a homestead. The one who had rented my place the year before took it again on similar terms, giving me what I wished for my own use from the crop. He had cultivated about 50 acres of beans, corn, etc., making 1000 lbs. of beans to the acre (worth 3 cents per lb.), 20 centals of corn, etc. In 1885 the crop was much poorer, mainly because of a lack of proper tillage. This year I farm my own place, and the prospects are very bright for a large yield. What do you think east, of 60 bushels of corn to the acre, raised without one drop of rain from the time it is planted until after it is ripe? In my garden are two-year old tomato-vines, still blooming and bearing as they have for every month in the year. CHARLES M. DRAKE.

Springville, Ventura Co., Cal.

SURPLUS HONEY IN BOXES.

SOME NEW THOUGHTS FROM FRIEND DOOLITTLE, IN REGARD TO STARTING THE BEES IN SECTIONS.

ON page 181 of GLEANINGS, present volume, I find these words: "The most difficult problem I find in bee-keeping is how to make bees store surplus honey in boxes." As this was once the perplexing problem with me also, I thought perhaps by telling how I had solved it so I have no more trouble along that line, I might benefit some of my fellow-apiarists.

At first I tried the plan, so often given, of taking boxes from such colonies as had commenced work in them, and placing said boxes, bees and all, on the colonies which still refused to work, and in this way I was generally successful; but occasionally a colony would not yield to such persuasion. After trying various plans on these obstinate ones, I at last hit upon a plan which always brought any colony to terms. It was this: I went to a colony which had a surplus of drone-brood, and cut out a piece of said brood, fitting it in a single box or section, putting this section in the center of all those on the hive. Immediately the bees would enter this section to protect this brood, which resulted in a start being made in the sections all about it. The great objection to this plan is the trouble, and the getting of an inferior grade of honey where this brood was. As I did not like these two objections, I fell to studying, the result of which was that the next year found me reducing the size of my hives by means of dummies, or division-boards, so that the brood should be close to the sections, as was the case when the drone-brood was used. Upon looking over all these obstinate colonies I found that all of them were such as had much empty comb-space in the brood-chamber at the time the honey-harvest commenced, which space the bees filled with honey, when they began crowding the queen, rather than taking to the sections.

I have often noticed, that, if the bees start to storing in the brood-chamber to any great extent before entering the sections, such colonies will generally be unprofitable as far as section honey is concerned. For this reason I take away all combs, not occupied with brood, from the colony I am to put sections upon. Dummies, or division-boards, are used to take the place of the broodless combs taken away; and thus when the bees get a surplus of honey it must go into the sections, as they have nowhere else to put it.

Another thing, when I put on sections I put on only a few to start with, for a large amount of room given at the commencement of the season tends to discourage the bees. I generally give room to the capacity of from 15 to 20 lbs. to start with, and in a week add room for 10 to 15 lbs. more, and so on till the full capacity of the hive is reached. In this way the bees are led along so as to accomplish the best results. When hiving new swarms, they are allowed only from 4 to 7 brood-frames, according to the size of the swarm, which plan always gets them in the sections at once. They are allowed no more room below until 25 days after hiving, at which time their numbers are largely augmented by the rapidly hatching brood. At this time the hive is filled out (9 Gallup frames), and, if needed, more surplus room is added, so as to prevent what are called "virgin swarms" issuing. As soon as all the brood is hatched out of the combs in the parent colony, and the young queen gets to laying, this brood-chamber also is contracted to from 5 to 7 combs, and thus all are at work in the sections during the best of the honey-flow, to the best possible advantage. When the white-honey harvest is over, the sections are taken off and all hives filled out with combs to their full capacity, so that, as a rule, I have plenty of honey and plenty of bees for winter.

In the above, Wm. G. Norton (page 170) will find an answer to his queries. I will further state, for his benefit, that I use "duck" and enameled cloth on my hives in place of a honey-board, and these quilts are rolled back as more sections are put on, so that the top of the hive is kept covered. In this way I can put on few or many sections, as I desire.

Borodino, N. Y., Mar., 1886. G. M. DOOLITTLE.

Friend D., I congratulate you on having brought out a very valuable point indeed. Since you call attention to it, it seems very plain and clear, and I have no doubt you are right, although the whole thing is to me a new thought. I have often noticed that bees prefer to commence building comb as near to the brood-nest as they can get it—often building fins at the ends of the frames, rather than go a little higher up and work in section boxes. I have also noticed that they commence building new comb much quicker after the brood-apartment is closed up so as to make the bees fill it pretty closely. When they begin to feel the need of more room, and begin to crowd out somewhere, if we can make them crowd up into the sections it is just what we are after. The idea comes very seasonably; and let our friends all look to the matter of preventing honey-storing in any empty space in the brood-chamber as much as possible when honey begins to come in. I am sure, also, that it is much better to give more room to a colony gradually. A whole upper story at once is, as a rule, too much. Some may object to the time and extra manipulation, but I do not see how the best results can be secured without some pains and some work.

DO BEES HEAR?

AND DO THEY HAVE ANY VISIBLE ORGANS FOR THIS PURPOSE? AN EPISODE OF A SPIDER.

L. N. TONGUE, of Hillsborough, Wis., asks me the following question: "Do bees hear? Let Ernest examine and report. It is disputed by some, but I claim they can." Mrs. Chaddock, a short time ago, asked the same question, and I will now proceed to answer it as well as I can. I do not think we shall ever be able to render a decision that will be final to all parties. This question has remained in uncertainty for centuries. As long ago as 750 B. C., Isaiah seemed to believe that the bee possesses the power of hearing (Isa. 7: 18). Aristotle, who lived in the year 380 B. C., something over a hundred years after the time of Esther, of whom we have been studying lately, said, "*Incertum est an audiant*"—it is uncertain whether they (the bees) hear. Huber, to whom we are indebted for so many valuable observations, expresses his doubt as to whether the bee hears, and yet is inclined to think that they have something analogous to the power of hearing. Our own Prof. Cook, if I am correct, though I may be mistaken in the person, says that bees probably can hear, though there are no distinct visible organs which can be found, answering this purpose. Naturalists are not agreed as to the exact location of the bee's ear; but the majority are of the opinion that the power of hearing resides in the antennæ, or "feelers," as they are commonly termed, basing their arguments from the number and the analogous location of these organs. Others ascribe to the antennæ only the power of delicate touch, and not a compound organ of both hearing and feeling. They further assert, that bees are sensible to sound only as vibrations affect the organs of touch. It seems to me, in the light of present facts, that this position can hardly be tenable.

Let us glance for a moment at a few facts and observations. We are all familiar with the peculiar piping "zeep, zeep," emitted by the queen on certain occasions, as at introducing and at swarming time. Why does she do this? Certainly not for her own individual pleasure, nor that we, as human beings, may listen to her tiny voice. We must agree that this is manifestly a signal to the workers, and that the workers understand it. Many a time, in introducing queens, I have heard this sharp note. The workers would then show considerable signs of excitement. It is true, that scent may have produced this effect, but I think not in such a marked degree.

Once, while standing in front of a hive, I heard this peculiar piping of the queen. It was sharp and prolonged, and I then began to suspect something. Before I had time to form any opinion, out poured the bees from this hive by the hundred, until the air was filled with a large swarm. I naturally concluded then, and still think, that the queen gave her signal for the swarm to issue, and that the bees heard it. The queen may not always signal the time for swarming, but I feel confident that she did in this particular instance.

Again, the very existence of this piping note of the queen proves, to my mind, that it was not created without a purpose, and this purpose manifestly was that the bees should hear it and act accordingly, as they choose.

During my experiments recently in determining how long a few bees would live, caged on Good candy, I learned one or two other things besides. Some of the cages that I had for this purpose contained a single bee, and others a dozen or more. The cages were scattered through the various sections of a paper-holder, perhaps two or three cages in a section; and were so arranged that the occupants of one cage could not see those of another. On several occasions I noticed that, when the bees of one cage set up a buzzing, the rest all began, until it seemed like a whole swarm. Now, I think the bees of one cage must have heard those of another, in order for all to buzz at the same time as they did, for all other means of communication were cut off.

DO SPIDERS HEAR AND APPRECIATE MUSIC?

Whether the bee hears the drumming of tin pans, or can appreciate the delicate sounds of music, might be a matter of doubt—at least, I never heard of a bee that was spellbound at the sound of music. It is said that Sir John Lubbock, after playing the violin before his bees, was not able to induce them to waltz, beat time, or try the key of "one sharp" on him. Whether Sir John ever tried any thing of this kind, I am not prepared to say; at any rate, an indifferent behavior on the part of the bees is not to be wondered at. In books of natural history we read that spiders, however, seem to exhibit signs of keen enjoyment at the sound of the guitar or other instruments. When I first saw this statement it was too much for me to believe; but chancing, one evening, to play my accordion some years ago in the factory, one of my friends who was with me ejaculated all at once, "Oh, look at that monstrous spider!" As I continued to play, the insect advanced toward me, for reasons that I did not then suspect, and, before I was aware, it was perched upon my knee, whereon rested my accordion. Feeling a cold chill creep down my back as I discovered this intimate friendship, I shook the ugly "baste" upon the floor, stamping my feet as I did so. The spider made good his retreat, and disappeared under a pile of boards. When quiet prevailed, and I had resumed my playing, lo and behold! our good friend crept cautiously out as before. I will not say that he waltzed, but he *did* act as though he were spellbound. I then recollected what I had read, and naturally concluded that it was the music that delighted his worship. If I ceased playing, the spider soon crept away; and whenever I resumed he would reappear. I made repeated trials, with the same results, and on separate evenings too. On one or two occasions I called him out in this way to show him to my friends, who were a little incredulous.

It seems hardly possible that the vibrations caused by the music produced an agreeable sensation upon the antennæ of the spider, and that it was only a delicate sense of touch, and not of hearing. On the contrary it is reasonable for me to suppose that the spider not only *heard*, but enjoyed, the music. Whether a bee can appreciate musical sounds or not, we can not decide; but if a spider can *enjoy* them, I believe a bee can *hear* at least the "zeep, zeep," of the queen.

E. R. Root.

I will add to what Ernest has said about the calling of a queen, that I have repeatedly seen bees start, as if with one accord, toward a strange queen when she uttered this strange "zeep, zeep;" and, more than that, I have seen the bees on a neighboring frame start *en masse* toward the point from which the sounds proceeded, when a strange queen uttered this call; and, if I am not mistaken, I have seen them do it when the frame containing the queen was in one hand, and the bees that started in response to the call were held on a frame in the other hand. I am satisfied that bees can hear the call of their queen, or of a strange queen; but I am also well aware that a pistol may be fired within a few feet of them without our perceiving even a flutter or vibration of the wings.

HOW TO TAKE OUT SECTIONS.

THOSE 4000 BASSWOOD-TREES MENTIONED IN THE A B C.

CAN you tell me some good way to take the first row of sections out of your crate? It is easy enough after that.—I doubt not that many others would be glad to know the result this year of the 4000 basswood-trees mentioned on page 30 of A B C.—When I return combs to second story of the hive after extracting last time, the bees usually clean them up by gathering the honey into a few cells in the center of each comb, making it necessary to pass all combs through the extractor again. How can I get them to take this honey below, or will it be all right to leave it in the combs?

Salem, Columbiana Co., Ohio. M. F. Taber.

Friend T., the easiest way to take the sections out, if the case is all full, is to turn the case over, and, with a suitable follower, press them out all at once—the case being raised half an inch from the top of the table, with suitable strips of wood in each end. If you want to remove the filled ones, and leave the others to be finished, we usually have but little trouble in getting the first one out by means of a screw-driver or a heavy-bladed knife.—During 1885 our basswood-orchard yielded a tolerable crop of blossoms, and quite an army of bees could be seen going in the direction of the trees every morning while they were in full bloom. As there are some heavy forests of basswood near by, however, it is likely that quite a large part of the bees visited these forests.—The only way to get every drop of honey out of your combs after extracting, is to leave on the upper stories until the bees collect these little patches of honey and carry them down, toward the approach of winter. If some honey is left in the combs over winter it does no harm, providing your combs are wintered in some place secure from moth or robber-bees; that is, you do not want robbers to work at them when they commence to work in the spring or late in the fall.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from March 15.

CHAPTER XIII.

Better is little, with the fear of the Lord, than great treasure and trouble therewith.—PROV. 15: 16.

As I commence this chapter during this 6th day of April, 1886, our country is beset with troubles on account of strikes because of the conflict between labor and capital. A great many are also in trouble because of the very low prices obtained for every thing, and therefore many are out of work. I bought a load of large beautiful "Northern Spy" apples at only 30 cts. a bushel. The man took that, rather than drive around from house to house, meeting only with the discouraged statement that they had more than they wanted already. At the very time I bought those apples, my own were rotting at the rate of a bushel a day, and I did not need any more. Another farmer sold me twelve dozen eggs for only an even dollar; and if one were to keep his poultry shut up, and feed them till they lay twelve dozen eggs, I am sure the feed would cost more than a dollar. Fifty bushels of turnips are shooting up sprouts out where they are buried, but no one wants them, even at 35 cts. a bushel, although they usually bring a dollar a bushel in the spring. A year ago last fall I thought I should like to try my hand at raising a piece of wheat. I was going to show the farmers what big farming and modern implements, underdraining, phosphate, etc., would do. How do you suppose it turned out? I think I got about 24 bushels of wheat to the acre; but I was offered so little for it I concluded to keep it to feed to my Light Brahmas. It is true, we have had eggs almost all through the winter, and I have enjoyed keeping the poultry; but I doubt whether the eggs would have sold for enough to pay for the wheat, and I doubt again whether the wheat would have sold for enough to pay for the expense of raising the crop, to say nothing about the value of the land, that cost me over $200 an acre.

Although labor is plentiful, and people are everywhere begging for a job, yet real faithful farm hands are not plentiful. Out of the hundreds who apply to me for something to do, I doubt if there is one who would feel greatly *worried* or *troubled* if he knew the crops he raised for me would not sell for enough to pay the wages he receives. He would doubtless think that was *my* part of the business, and that *his* was to do as he was bidden. May be he would think I had lots of money, and that I was doing it for fun any way, and that he might just as well have some of my money as anybody else.

Now, I presume I could write several chapters full of discouragements like the above. Shall I go on? I think there is no need of it; in fact, I think the better way will be for us to examine the above, and see where the trouble is. If this book is to tell you all what to do, and how to be happy in doing it, we can not very well have it filled with such doleful tales as I have just given you. I have before told you that the book was written for poor people, or any kind of people who have leisure hours, and want to know how they can make some money during those leisure hours. If somebody had asked me to write a book stating how people who are busy from daylight till dark could make *more* money by hiring other people, I think I should have said at once I didn't know how to write any such book. In fact, I very much doubt whether a book could be written to tell people how to make money by hiring somebody else to take care of their poultry, their garden, their greenhouse, or any of these things. All these kinds of industries need yourself, my dear friend. God wants you, and no substitute; and the first thing to do in any kind of business is to learn to be faithful and successful yourself, and in due time this faculty of being able to employ others will come. It can not be learned out of a book, although a book may be a great help to you; and this book, I feel sure, will show you the way in which you can be comfortable and happy, providing you are willing to work. In fact, I begin to think more happiness is to be found with small possessions, than where property has been left you. Giving a young man a good farm does not necessarily make him happy; and if he should get two or three farms by the death of relatives, it seems to me that, in the generality of cases, they would be pretty sure to make him unhappy. Our text says, "Better is a little, with the fear of the Lord, than great treasure and trouble therewith."

Now, then, about the low prices. There is a bright side to it, even, as there is to almost every thing else, if you take it in a bright and hopeful spirit. If apples are cheap, think of the number of juveniles that rejoice over healthful fruit in the spring of the year. At the time I was telling you how low apples were, I did not say any thing about the price of potatoes, although I thought of it. Potatoes bring readily 20 cts. a *peck* at retail, and the price will very soon be 25 cts., or a dollar a bushel, probably, for there are no potatoes in our town, of any account. I need not tell you that, at these prices, potato-raising is a very profitable business. It is true, that eggs are only 8 cts; but at the same time, butter is from 20 to 25 cts.; and I have just been informed there is no butter in our town. Do you see the point? You are to make it your business to fill up these gaps or vacancies. If your crops are nicely cared for, and nicely husbanded for safe keeping, and a scarcity occurs, you will get good prices; and even these same apples that have been begging customers at 30 cts. a bushel may bring a dollar in a few weeks. The roads have been bad, and farmers have been saving their apples for better prices. Pretty soon they will all be gone; then with the inquiry for them comes a scarcity, and good prices for the lucky ones. Eggs, as a rule, are low in the month of April, and the prudent poultry-keeper should bear this in mind. The turnips will probably soon bring a dollar a bushel, if they can be prevented from growing and becoming pithy. Very likely some of my readers know how to do this better than I do, and may be we raised more turnips for our market last fall than was wise. Last summer, turnips were quite a hobby of mine, and we had the first in market — yes, the first by several weeks. Shall I tell you what the result was? Why, we got a dollar a bushel at retail for our whole crop of yellow ruta-baga turnips for table use; so if we overdid the matter a little for turnips in the fall, we hit it exactly in the spring. It requires experience and brains to hit these things just right.

In regard to the price of wheat, the man who has but a few acres of land near a town or city should never think of raising wheat. Nobody ever pays extra for the *first* wheat that is brought into the market, and the wheat business properly belongs to the great prairie lands of the West. To compete with them would be folly, and it is much the same with corn. You can raise roasting-ears for market, it is true; but you can not raise corn by the carload at 25 cts. a bushel, unless that is your business. If you can raise potatoes, and have them on the market by the 4th of July, so as to get two or three dollars a bushel at retail, of course it will pay you to raise potatoes.

In regard to poultry. We have sold great numbers of Stoddard's book, entitled "An Egg Farm;" but although I have been waiting for, and watching reports anxiously, I have never heard of an establishment that raised eggs on a large scale, so they could sell them at 8 cts. a dozen at a profit. It may be done; but my impression is, it is a pretty difficult matter. Shall we give up poultry? Surely not; for every market gardener, or every small farmer as well as large farmer, needs poultry to gather up all sorts of waste food that would ordinarily be lost without them. "Gather up the fragments that nothing be lost," is a wise proverb. Last summer we had a hen that was pretty wild, and she was allowed to hatch a brood of Light Brahmas. Well, just as soon as her coop was turned over so she was at liberty, she took those Light Brahmas down to the creek; and when she got them there she just kept them there. I used to go down mornings and see them start out just after sunrise. How they did enjoy themselves among the corn and squashes, and rambling over the grounds! Did we feed them? Not at all. They fed themselves, and benefited our crops greatly. No one knows what those two broods of chickens were worth on our crops down by the creek. They cost nothing in the way of attention, nothing in the way of feed. When the old hen weaned them they roosted nights under the maple-tree; and when it came cold weather I had quite a time to get them to come up to the poultry-house and avail themselves of the advantages of civilization. People saw them as they were passing by; and before the roosters were full grown I sold them at a dollar apiece, and some of my customers went away chuckling, to think I didn't know any better than to sell them so cheap. The eggs were from a choice strain of Light Brahmas—that is all.

Now, every good-sized farm would support quite a large lot of chickens, and the feed in summer need cost nothing; in fact, you could afford to pay something to have the hens pick it up. Sunday evenings we used to take a walk down by the carp-pond, and it was one of my delights to point out to my wife and children my flock of Light Brahmas that "worked for nothing and boarded themselves." Perhaps some of the poultry-keepers and poultry-journals would ridicule such a slipshod way of raising poultry; and they may urge the danger of their being devoured at night so far away from house or home. Well, mine were never harmed, although they were near the creek, where enemies might be supposed to lurk. But should there be danger of such nocturnal prowlers, our ten-cent poultry-book gives directions for a cheap and pretty little poultry-house for just such flocks of chickens. If you are going to keep chickens in this way, of course you can keep only about so many on a certain area. I got a dollar apiece for my roosters, and they cost almost nothing. The reason is, as I told you, I started, in the first place, with some fine stock that was universally wanted. Besides the birds sold, a good many eggs were disposed of also, at 50 cts. a dozen; but I suppose everybody would have been satisfied at a dollar a dozen. After investing several dollars in one of the best male birds this spring, I am now going to charge a dollar a dozen for the eggs. Now, there is something else I wanted to say in regard to poultry; but as it starts from a different standpoint, we will take it up in another chapter.

CHAPTER XIV.

That which the palmerworm hath left hath the locust eaten; and that which the locust hath left hath the cankerworm eaten; and that which the cankerworm hath left hath the caterpillar eaten.—JOEL 1:4.

My friends, if you desire success in raising plants or in raising poultry, or in any kind of business, you have got to fight against difficulties and discouragements. Sometimes it would seem as if the odds against you are terrible odds. If you do not work carefully and wisely, you will see the work, not only of hours, but of days, swept away so quickly that it will take you by surprise and astonishment. You may have made ample provision against the effects of frost by means of glass sash and steam or hot-water pipes; but just as soon as you get a temperature just right to make the plants *boom*, you will discover that you have hit it exactly in making insect-life "boom." Perhaps the first enemy you meet will be green flies on your lettuce and other plants; and beware how you think they do not amount to much, and can not do much harm. So wonderfully rapid are their powers of reproduction, that, before you know it, they will fill your greenhouse. If you go to the books they will tell you that a thorough fumigating with tobacco-stems will kill the flies. Tobacco costs money, and fumigating takes time; and by and by you begin to fear it is more bother to fight the green flies than all your stuff is worth. If the little pests would only be so accommodating as to die submissively after you have smoked them enough, as it would seem, to satisfy any reasonable bugs, you could get along very well; but they will get sick from the tobacco, and fall down on their backs, and after a while get up again and increase faster than ever. We became almost discouraged this last winter, through this same pest; and I verily believe that the bugs would have come out ahead had we followed the directions given in the books. In despair, I wrote to our friend Peter Henderson. He told me that it is quite a hard matter to kill the flies on the leaves of lettuce when it got to making heads, for they would get down under the leaves, where the tobacco smoke could not reach them; and he said the only plan was to cover the ground with tobacco dust and then drench the plants with a tea made of tobacco-leaves. This conquered them—at least for the time; but to go over all the greenhouse in that way takes more time and tobacco than the lettuce would likely be worth.

About the first of January, for an experiment, I set one of my Light Brahmas under one of the benches in the greenhouse. Only one chick hatched out, through some carelessness on my part; but that one chick came pretty near managing the green flies, alone and unaided. When, a little later, half a dozen more spry little Brahmas came on the stage, they went over the whole of the beds, and through all the boxes of plants, and so effectually picked out the green flies in about three or four days' time that the victory was complete. Friend Terry says, in his potato-book, that the best and cheapest way to master potato-beetles is to take them off and kill them by hand. And I believe a good many others find it so. Now, after you have seen a chicken go through a greenhouse bed and snap up the insects one after another, you will doubtless decide that human ingenuity can never make a better machine for the purpose than the chicken that human ingenuity did *not* make, but that God gave, as he gave all of these other things for us to utilize. A year ago I made a similar discovery of the utility of chickens in banishing the little black flea that infests cabbages and turnips in the open air. The chickens, however, must be of the right age. In ten days after they did such execution among the lettuce they began to eat the young tomato-plants at such a rate we were obliged to keep them off from the beds, even though they chased us about and chirped incessantly to be lifted up.

Now, then, I should say that whoever goes into gardening, or starts a greenhouse or a hot-bed, wants to start, at the same time, some chickens. When you have secured a temperature right for your lettuce to grow, you have also secured a nice place under the lettuce-bed for a hen to sit; and I would start one sitting, say in October or November, and then start another every three weeks all winter long. The chickens will pay expenses by keeping down all kinds of insect-pests. They will also amuse the children, and make your greenhouse a pleasant and happy place for yourself and visitors. No hen is needed in the warm greenhouse after the chicks are three days old. Fix a warm spot somewhere for the chickens to cluster, then pick up the old hen and put her among the other fowls, and she will forget all about her chickens in a day or two, and go to laying again. Your first brood of chickens will take care of the next, and so on. When any of them get so large as to make trouble in the greenhouse, "transplant" them to the regular poultry quarters. Where chickens are wanted in the greenhouse, a hen is a detriment; for she keeps calling them down from the beds, where *they* can be allowed, but where *she* can *not* be allowed for obvious reasons. In a little time they get so busy and delighted with their work in the beds that they pay but little attention to a mother. The temperature of the greenhouse is usually so warm they need but little or no brooding. When you use chickens for keeping down the little black flea, or "jumping jack," as it is called, out in the open air, the case is different. Then, you want the mother to brood them when the weather is chilly, and to hold them to the desired spot. A convenient place for her is in the ordinary coop made in the shape of a letter A. I would, however, cover the front with poultry-netting instead of the ordinary slats. So you see poultry is going to be a necessary part of our business in market gardening. I am told that Pekin ducks will live entirely upon the refuse of a market garden, and that they will eat potato-bugs, squash-bugs, and every thing in that line. Well, we have a pair of old ducks, but ducklings have not yet made their appearance. Perhaps you would like to have my ideas of the way in which poultry should be kept, to make a sure profit and yield a sure pleasure. Very well; here goes:

HOW TO KEEP POULTRY, THAT THEY MAY AFFORD YOU BOTH PLEASURE AND PROFIT.

You may think this a simple matter; but I find it quite important that you consider well, and lay your plans wisely before you start. It is just as easy to start right as to start wrong. If you have no poultry, and never kept any, you will need to deliberate quite a little time, perhaps, before you can decide upon the *best* place to keep them. If they are going to yield a profit above what they cost, we can not afford to pay out very much money in the start; and I am glad to be able to say that not much money is needed. Although you may have plenty of time on your hands now, you are not going to have when you get things in running order. The location should first be such as to save time and steps. If you have a cow, horse, or pig, it will be economy to have the poultry quarters near these domestic animals; for when you go out to care for one you can care for all. Our poultry-house is placed between the factory and dwelling-house, so that I can have an eye on them every time I pass to and fro. If I neglect to take a look at them for a very long time, I am sure to repent it, although they have feeding-boxes and water so they are always provided with these things, whether they are visited daily or not. The poultry-house should be sheltered from the prevailing winds. It should also have plenty of sunshine. During pleasant weather there should be open sheds fronting the south, for the fowls to get out and in, and take the sun and air. Two of these sheds are very convenient—one that takes the sun in the forenoon, and the other in the afternoon. Sometimes the wind is in the east and sometimes in the west. If you give them two sheds, they can select the one of the two that will cut off the cold winds.

While poultry must have dry quarters and dry ground to stand on, they should also be as near to Mother Earth as may be, so as to get the benefit of the heat from this source.

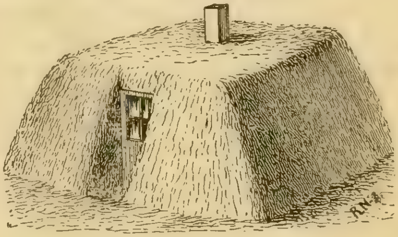
During severe winter weather, their quarters should be so arranged that they may be confined to a pretty small-sized inner room, to economize the animal heat. I discovered last winter, when the thermometer was below zero, that twenty-five large fowls like the Light Brahmas would keep such an inclosure at a very comfortable temperature, simply by the heat of their bodies. At such a time the openings may be closed about as tight as you can get them, and they will still have plenty of air.

If you can stand the expense it is an excellent idea to have the fowls so they can be shut up in a certain yard when, at certain times of the year, they become troublesome. For instance, if they get into a habit of digging up your new-made beds in the garden, shut them up until they get over it, or until the soil has, by reason of the sun and rain, ceased to look so tempting to them. They may get into the notion of eating your tomatoes at a time when it will be less trouble to shut them up than to try to keep them away from the garden.

Mrs. Root says she would not have poultry encouraged to come around the house very much. The walks around our house are sawed flagging, from the Berea grindstone quarries. This flagging looks very nice and cool and refreshing when it is kept swept off clean; but although Light Brahmas are very handsome and nice looking in the proper place, they are not just what is wanted on a nice lawn or on the walks. If their quarters are, say, 30 or 40 yards from the house they will seldom prove a nuisance in this way, unless they are encouraged to come around by bread crumbs or other food thrown out carelessly. Keep a pail in the house, called the "poultry-pail," and put the crumbs and bits from the table into this pail until there is enough to carry out to them. I like the idea of having a small plate near my own plate on the dinner-table; and when I come across a bit of food that I think is more appropriate for poultry than for myself, I lay it aside for them. Don't let any thing be put into the kitchen fire, or be carelessly thrown away, that will please the chickens. Remember they need water, grain, meat, and green stuff such as cabbage and lettuce, bones, to make egg-shells, and ashes to wallow in, etc. When you get into the way of buying ashes from your neighbors, you will find that, by sifting them with a sieve of the proper mesh, that there are lots of small bits of bone in the ashes. I was greatly surprised, in sifting the ashes we have saved up in this way, to find a splendid lot of bits of bone, burned enough so they break up very easily, just right for poultry.

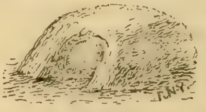
A great many ways have been devised to keep poultry-houses clean. I have never found any thing equal to peat. Draw several wagon-loads, and pile it up near the poultry-house. Whenever the ground looks untidy under the roosts, cover the untidiness with a scoop-shovelful of peat. Take a rake occasionally, and rake it all up together. This will give you a fine compost for your plants. Notice, will you, how the hens and the garden work together if you manage them rightly.

If you have only a few hens, and find it difficult to keep them as warm in winter as they ought to be, fix the place where they roost in winter, and where their nests are arranged, something like the cut below, which has been kindly loaned to me by our friends of the *Rural New-Yorker*.



POULTRY-HOUSE, PROTECTED FROM COLD BY SODS AND EARTH.

The picture gives the idea of this, so that you can modify it to suit your taste. I have no doubt such a place would be very pleasant and cozy during bleak wintry days, providing, of course, you keep it dry inside. A sub-earth ventilator would bring in air, and at the same time make a very perfect drainage, if tile were laid around the outside, to keep the water from soaking in through.



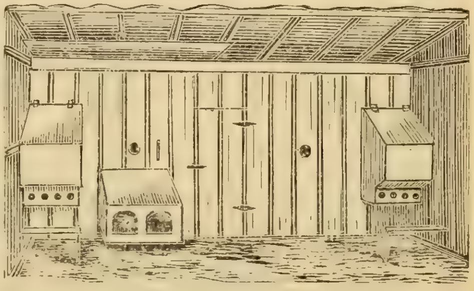
SHELTER FOR HEN AND CHICKENS.

The small cut adjoining this shows a plan for making a warm place for a single hen and chickens. A barrel is imbedded in a suitable bank of earth, being careful to have perfect drainage as heretofore. Sod it over so that the grass will help keep out the rain. When the weather is very cold, put a board before the door, and fasten the mother and brood in. They will be warm and comfortable, even during a severe freeze. If it could be managed so no dampness nor wet could possibly get inside, some chaff cushions, such as we put over our bees, might make it very comfortable for the biddy and her brood.

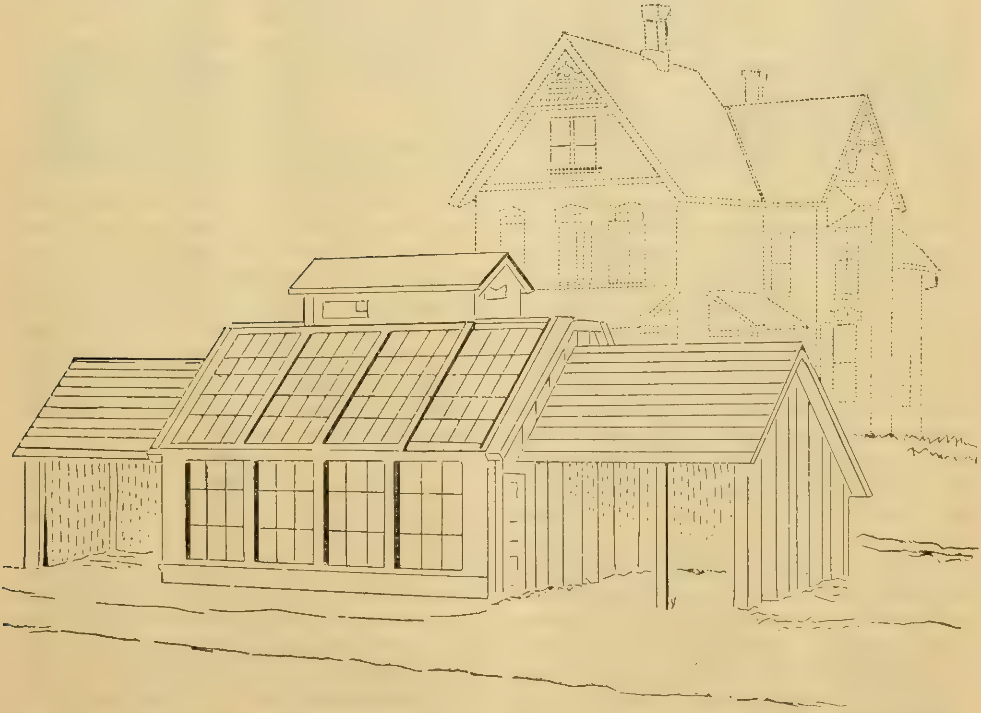
Now, unless I am very much mistaken, you who undertake to keep poultry will, unless you are naturally given to doing every thing well, experience many disappointments. Any one who is in the habit of saying, "There, I think that will do well enough," or, "Well, that is a little risky, but I guess it will have to answer," and such like expressions, will surely meet with disappointments and losses that will spoil all the profit. When I was a boy, and had nothing on my mind but my poultry, I used to succeed right along. I remember distinctly of setting a large white Shanghai hen on fifteen eggs, and getting thirteen live chickens, and I believe all were raised. Shall I tell you a little of how I have managed since I have got grown up? Well, I have set four hens this year, and the result is only four chickens. The failure in each case was because too many other things were on my mind, and I couldn't give the hens the thorough care and attention they needed. The first attempt, thirteen eggs produced one chicken. I overdid the matter by providing food for my sitting hen, so she never needed to come off from her nest at all. I didn't let nature have her own way. The next time, I took a smaller-sized hen, gave her eleven eggs, but took her off the nest regularly every day for food and refreshment, and gave her a nice place to wallow in the dust. She hatched out six chicks from the eleven eggs. The next time, a neighbor kindly offered to let me have a hen that wanted to sit, when none of mine would. To save trouble, I carried the eggs to my neighbor's poultry-house. Well, during the big snowstorm the fowls were fastened in by the snow, without food. When they could do no better they all turned upon the sitting hen and broke and devoured a part of her eggs, so I got only two chickens. The last time, a Brahma hen was allowed to sit; but a pair of Pekin ducks were left in the same yard, thinking they would do no harm. Now, although the ducks had plenty of food—corn, wheat, cabbage, and refuse from the table, they got to persecuting this sitting hen and broke all of her eggs but about three, before I knew it. A few days ago somebody broke a pane of glass out of the door of the greenhouse. They were going to repair the damage, but I told them that, during this warm April weather, it might just as well be left out. A cat got in at night, ate one chicken and killed two more, so I have only four left. Well, these disappointments were the consequences of lack of care, and letting things go in a sort of slipshod way. Now, I am going to raise a lot of Brahma chickens, just to prove that I can do it. The Brahmas are to have a yard by themselves. No ducks nor rabbits are to intrude; and when a hen wants to sit she is going to be allowed to do so in the good old-fashioned way, without annoyance from other fowls or other animals. The young chickens are to be protected by poultry-netting so no cats nor other enemies can possibly get at them. And this reminds me that mishaps and disappointments often happen because a gate or door is left open, and then something happens. Dear friends, accidents rarely happen unless some piece of carelessness permits them to happen. We are in the habit of speaking of some people as lucky, and others as unlucky. Now, I am sure anybody can be lucky with garden stuff or poultry if he tries hard enough; and if he does not try hard enough, he will surely be unlucky. A friend of mine (and she is a woman — I hope my lady readers will excuse me) succeeded in getting thirty-one chickens hatched by three hens, and thirty out of that number are now alive and doing nicely. Was it luck? No. It was simply good hard common sense and faithful care. There is no excellence without great labor.

On next page is a cut of the poultry-house I have often referred to, and which was made according to my own notion. The south roof and the south side are all glass, as you will notice, and I had it made in this way because I had noticed how nicely chickens did in a greenhouse.

The glass feature I like very much indeed. During some of the severest cold weather last winter, the fowls were cackling and scratching, and enjoying themselves in the full blaze of the noonday sun, even though the temperature was far below zero outside, and that, too, without any heat except the heat of the sun combined with the heat from their bodies. The body of the house containing the glass is 10 x 14 feet. The wings are exactly alike, and are 8 x 9 feet. They are both open towards the south, as you will notice. The eaves come down within 4 feet of the ground, so that you have to stoop a little when you go under. My reason for making them so low was to admit the sun, but exclude cold storms as much as possible. Unless the weather is very severe, the fowls will be found occupying one or the other of these sheds almost every sunny day. In the morning the sun pours directly into the shed at the right; and in the afternoon the same way with the other on the left; and one or the other of them is almost always protected from the cold winds. You have probably often noticed the way in which fowls congregate around the corner of a building, so as to avoid the wind. Well, the open sheds are made to answer another purpose still. In sultry weather the poultry seem to be happier when roosting out in the open air, or up in a tree, than anywhere else. Now, their roost is a strip of pine, 3 inches wide by 1 inch thick, and running straight through the three buildings; that is, this perch runs through the back part of each shed, and through the back part of the body of the building also. The three buildings are made of two thicknesses of inch pine, with building-paper between them; and where this perch or roost passes through the walls of the main building, close-fitting doors, large enough for even the largest Brahma rooster, are made right over the perches. In winter the fowls all roost in the warmest apartment of the main building; but as soon as the weather will permit, these little doors over the perches are swung open, and the fowls crowd out into the sheds. I wanted to see what they would do if given their choice in regard to a roosting-place. Well, I am gratified to tell you they always choose the shed when the weather is suitable, moving over to the warmer apartment only when the nights are chilly. Well, now, in this main apartment, protected by glass, we have a partition running lengthwise right under the ridge-pole. The figure below gives you a view of this partition.



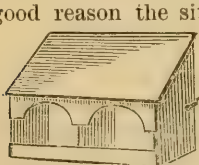
INTERIOR CENTRAL PORTION OF POULTRY-HOUSE.



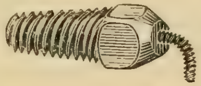
OUR POULTRY-HOUSE AS IT APPEARS ON OUR GROUNDS AT THE "HOME OF THE HONEY-BEES."

You will observe that this partition does not extend clear up to the roof. It goes up about 6 feet high, and then is covered over by means of hinged doors like lids of a chest. In the cut above, one of these doors is shown, swung open and hooked up to one of the roofs. This is for ventilation. During zero weather these doors close down tight. The door, also, in the center of the partition, is closed, making it so tight that many might think the fowls would smother; but we find by experiment, that, although 25 fowls are roosting in this little apartment, only about 3 feet wide and 14 feet long, they are quite comfortable, and the air is not by any means close so long as the temperature is below zero. A thermometer at such times will show this sleeping-apartment to be always above the freezing-point, with 25 large fowls. It must be ventilated promptly, however, as soon as the weather changes sufficiently.

Occupying each corner of the room above, and up against the partition spoken of, you will see a couple of feeders. These are made of inch boards, and screwed fast into the corner. The top is made sloping enough so that fowls can not stand on them, nor can their droppings find a lodging-place. Each feeder holds a two-bushel bag of grain. You will notice that the grain all runs down into the little trough at the bottom. The fowls have access to these troughs by means of four auger-holes. The auger-holes should be just large enough to let a hen get her head in. If too large, they will get to scattering the grain. While feeding, they stand on a perch, as shown, about a foot from the ground. Neither rats nor mice have ever found access to these feeders. Between these feeders you will notice a pair of nest-boxes. The roof of these is also sloping, for the reason given above. These nest-boxes are made large enough to admit a Brahma hen and let her turn around. The strip in front is to prevent eggs from being rolled out by accident. We prefer to have them in pairs, because, if the occupant of one nest is sitting, any hen that wishes to get in with her can get accommodations so near by as to avoid discussion in regard to who has the best right, etc. These nest-boxes are so they can be hooked against the wall wherever convenient; and if for any good reason the sitting hen is to be moved, unhook the box and carry it where you wish; or if it be desirable, the box can be dipped in whitewash or coal oil, to circumvent insects.

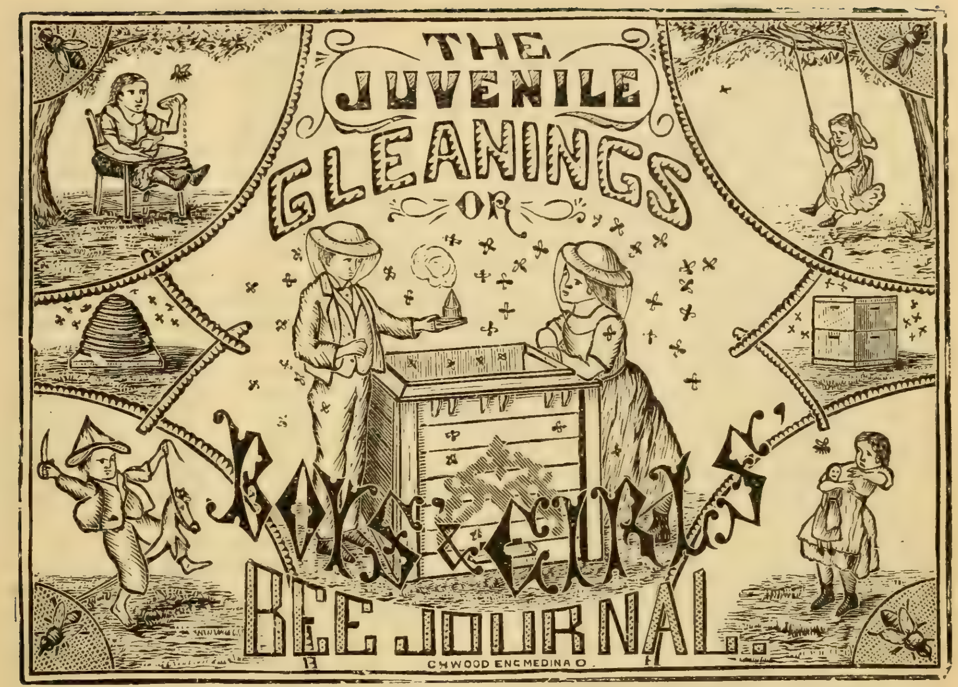

MOVABLE HEN'S-NEST.

Over the ridge of the main building is a sort of cupola. This hinged ventilators, has always kept open, except in extremely cold weather. In front of the lower sash, on the south side, is a large box kept full of ashes for the biddies to wallow and dust themselves in. Provision for water I would have located in one of the sheds, in moderate weather. In cold weather it may be put in the central apartment, to keep it from freezing. Perhaps a barrel is the cheapest arrangement ordinarily at command. To let the water out about as fast as the poultry drink it, and no faster, a faucet made especially, like the one in the cut adjoining, is very convenient. It is made of brass, to prevent rusting, and tapering so it will screw into a round hole perfectly water-tight. A hole is drilled lengthwise and then tapped with a thread, so that the brass screw turns in loosely. This screw is bent at right angles, as shown, to make it convenient to turn it in or out. If you turn it so the water drips from the point of the wire as fast as the fowls drink it, it is all right.


POULTRY FAUCET.

Coarse bone meal, for the use of the laying hens, we put into one of the feeders with the grain. Gravel, whichis found by experiment to be just what the chickens want, may also be put in the feeder, to come out with the grain. The above arrangement is for fowls in confinement; but I think it an excellent plan to have similar quarters, even where they have the range of the farm. At any time when the weather is unfavorable for outdoor wandering, they can then find a comfortable retreat and plenty of good feed. You will notice that my arrangements are for giving feed, all they want, whenever they are hungry enough to hop on to the perches before the feeders. This may not be the best way for others to do, but it suits me best. Whenever I undertake to cut short the rations, I find my fowls begin to cut short the number of eggs, and I have tested it pretty faithfully with Pekin ducks. When they had all the grain they could eat every day, they laid regularly. When I shortened their rations, occasionally one or more days passed without any eggs; but they took just as much exercise, and seemed to enjoy playing in the puddles all the same, whether they had the grain *ad libitum* or not.

To be continued May 15, 1886.


THE JUVENILE GLEANINGS OR BOYS & GIRLS BEE JOURNAL.
C H WOOD ENG MEDINA O.

He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

> The steps of a good man are ordered by the Lord: and he delighteth in his way. Though he fall, he shall not be utterly cast down: for the Lord upholdeth him with his hand.—PSALM 37:23, 24.

I HAVE before called attention to what the Bible has to say about enemies. David often speaks of them in the Psalms; and in the imprecatory Psalms he seems to be almost pleading with God to send calamities upon them. Then he rises above these feelings; and in one place he says, "I will not be afraid of ten thousands of people who have set themselves against me round about." The first part of the same Psalm opens up with, "Lord, how have they increased that trouble me!" Are *we* now beset with enemies the same way? In one sense I think we are. An hour ago, at the noon service, I startled some of the friends gathered there by soberly declaring, "I am sorry to say, friends, that an enemy is threatening us. We have talked of him before, and now there is no question but that we have got to fight him down."

As a matter of course, I soon had the attention of all gathered there, and quite a few looked a little anxious. Perhaps some of them wondered if we were not going to revive the subject of the burning of the warehouse, even though I had, a few days previously, asked them not to talk about it nor think of it. When they were listening anxiously, to know who or what it was, I spoke to them something as follows:

"The enemy I mean is the chap who goes around to the different rooms and takes tools away and does not bring them back; or if he does bring them back they are found to be damaged or ruined, and worthless. During the fore part of this week, Mr. F. missed his hammer, with which he embosses the rolls of our foundation-mills. This is very precise and particular work, and it is quite important that a hammer of just the right weight be used. Well, the enemy carried off the hammer; but before we could find out what he did with it, he brought it back and laid it on the bench. Mr. F. enjoyed the use of it for just two days, and now it is gone again, and nobody can tell where the chap took it.

"This morning I noticed in the tin-shop they were cutting the corners out of sheets of tin, for making the new honey-cans illustrated on page 274, by taking two snips with the shears, instead of using a pair of shears made expressly to cut out a corner at one clip. I asked the foreman of the tin-shop why he didn't use the regular corner-snips; and while doing so I took them down from the nail where they hung. The steel was chipped right out of the corner, making the tool almost worthless.

"'Why, Ned, how did this come about?' said I; and I certainly looked anxious while I spoke, and may be I looked a little cross.

"'Why, somebody grabbed them up to cut off a piece of wire. And that isn't the worst of it; for they come in here when they want a piece of wire, and always get the best shears, because they don't know how to cut wire, then go off and say nothing about it.'

"Now, friends, you see who the enemy is. Instead of going to the foreman of the room, and saying, 'I want a piece of wire so large and so long,' he undertakes to get it himself, thinking, probably, that any *fool* ought to know how to cut off a piece of wire; while the truth is, few wise men, unless they are wire-cutters by trade, know what kind of a tool is needed, and how to do it without injuring the tool. A great many people will pick up a steel wire, with too high a temper to be cut with any tool, and, seeing some shears or nippers, imagine they can do it. This enemy is just that sort of a fellow. Sometimes I catch glimpses of his coat-tails as he is just getting out of some room. Once or twice I have cornered him up, and got hold of him; but he always talks so fair, and explains so well that he didn't mean any harm, that I let him off and let it go; but with the rush of business we are now having, I am getting to be almost like David in his imprecatory Psalms. We must catch this chap, and I don't know but we shall have to put him in jail if he does not stop."

At this point in my talk, the anxious and alarmed expressions on the faces of many began to give place to a knowing look. One ventured to remark, "Mr. Root, he has got my pruning-knife." This came from the friend who sends out grapevines. Another remarked, "He has taken our rule out of our room." After the service was over, the pruning-knife came to light. The owner lent it to a fellow-workman, to cut the tops off the turnips while it was raining. He slipped it, for the time being, into his overcoat pocket; and when the sun came out, the overcoat was laid aside, and it could not be found. I told them that what was wanted was, that we should all fight against these careless ways of doing business, and all such besetting sins. We should be careful about touching a tool in somebody's else room, even though we want it only one minute; and to avoid doing damage to tools inadvertently, we should make it a point to go to the foreman, or to the proper workman, and have him do what we want done.

Now, this very matter has troubled me sorely. I have prayed over it, I have "scolded" over it, and I have sometimes begun to feel in despair, as if my project of having so many industries carried on under one roof would have to be given up as a failure, because of this enemy of whom I have spoken.

Now, friends, do you see the value of this noonday service in a factory like ours? With God at our head, and a feeling in our hearts that we are his children, it helps us to be neighbors in the truest sense of the word. It helps us to fight unitedly, and with a will, any common enemy; and it helps us to claim the promise in the two little verses at the head of this chapter about myself and my neighbors. Do you not see it so? It helps us to recognize that the worst enemies we have in this world, and the one most to be feared, are those that lurk (unknown and unrecognized, perhaps) in our own hearts, and not in the hearts of our neighbors.

GOING TO A SCHOOL EXHIBITION.

MRS. CHADDOCK TELLS US HOW SHE ENJOYED THE EXERCISES.

LAST night I went to a school exhibition. I knew better, but my girls are just crazy to go to every thing, and they coaxed me to go with them. The roads were just awful; but by driving slowly down, and walking slowly up the hills, we managed to get there at last. All one end of the schoolhouse was curtained off with three-cent calico, and they had a stage with a lounge and an organ on it, and some chromos adorned the wall. The crowd came pouring in, and every third man had a big looking-glass or a screen, or something that had to be handed over the people's heads, while dusky ghosts flitted to and fro behind the curtain.

The house was packed; there was no more standing-room, and everybody leaned against everybody because there was no help for it. I am a large woman, and am always getting smothered; and as fate would have it, I had to have a seat in the very hottest corner, where the window-fastening was broken, so that the window could not be raised. The reason I had to sit there was because none of the other seats were large enough to hold me.

The curtain parted at last, and the "school marm" stuck her head out and said, in a high thin voice, "We must have better order or we will dismiss and go home;" then when all the folks had changed feet she went on, "The first thing will be a select reading, called Betsey and I are Out." Then the American colonies fought and bled anew, and gained their liberties, with many a reference to ancient Rome. Next thing was a dialogue by two little girls, then a song by the big girls and boys. Then they read "a paper." The teacher announced "the paper" to be in "two parts;" but as a matter of fact, it was in half a dozen parts. One boy read till he gave out, then another took up the strain; and after reading all that he held in his hands he began fishing around in his pockets, and brought forth "paper" after "paper," till my head seemed to be swimming with a confused murmur of "roosters," "mustaches," "bangs," "boxes," "long-eared rabbits," and "beaux." I think I almost swooned; and when I revived, the reader was saying, "George Brown has made a hot-bed, and put his mustache into it to sprout."

I sat on the back seat; just behind me was a long bench, and it was full of boys and girls, wedged in so tight, standing cheek by jowl, that, if one of them moved it moved the whole row, and everybody said, "Don't push," and, "Look out there;" and every one looked innocent, and said, "It wasn't I."

One girl sat on fourteen different sides of me. She is a rather heavy girl, and she pulled this way and that, just as she happened to turn; and a heavy boy leaned on my left shoulder, and a slim girl leaned on my right shoulder, while a fat woman sat close up to me on the left, and a big girl, standing on the bench behind me, clasped me round the waist. The girl who sat all over me got in my lap and squashed me. I felt that I was going to die, and all the folks began to call for air, and a girl punched the broken spring with a slate-pencil and opened the window. I stood upon the seat and fanned myself with Minnie's hat. The daggers in it pricked the fat woman in the back, but she told me to fan on, she did not mind the daggers, it "felt good." It was against the rules to stand upon the seats; but I made up my mind to risk smashing the seat, and, if it fell with me, buy a new one. I'm pretty close and saving with my nickels; but when it comes to a choice between smothering to death or paying five dollars for a new seat, the five dollars has got to go. But when I stood up my feet had to suffer; they not only had to bear up my own weight, but the weight of various other people; for though my rising loosened me from one set of leaners, a new one surrounded me and leaned more heavily than the others had done, and the "heavy girl" trod on my toes and set my biggest corn to thumping, and the cold wind striking my face gave me the dancing toothache. The boys and girls with blackened faces were singing "Every day will be Sunday by and by," and I felt that every day would be Monday with me pretty soon if I did not get out of that. But there was no getting out.

Then they had tableaux, real nice ones, "Night and Morning," the "Rock of Ages," and a little fairy with long crinkly hair, and at each scene they burned colored lights and filled the house with a cloud of smoke; but at last, when the last dialogue had been acted, the last declamation spoken, and the last song sung, the crowd began to unpack itself. And when the "heavy girl" got off me, and the young man who weighed a ton took himself off my left shoulder, and the "fat woman" got off my polonaise, and the three "school marms" in front had taken their feet off my right foot, and the old lady in the black hood had released my other foot, I worked myself loose from the rest of them, and came home a sadder and a wiser woman.

MAHALA B. CHADDOCK.

Vermont, Ill., March, 1886.

BEES OF OUR OWN.

MRS. HARRISON TALKS TO THE CHILDREN ON HOW TO START IN THE BEE-BUSINESS.

BOYS and girls, I am glad to know that so many of you have bees of your own. It is said, that a person who owns his home is a much better citizen than one who rents — takes more interest in the prosperity of his neighborhood, as to roads, schools, etc.

Why, all of you who own bees are *bee-keepers*. You are adding to the wealth of our own, our native land. It makes me feel good all over to think of it. Have you made any money in the business? Veteran bee-keepers are discussing whether it pays to keep bees. Who among you will solve the problem? I wish you all had money in your pockets. Did you ever hear of its burning a hole in them?

Now I want to ask a favor of you all. It is spring now. Take an inventory of your stock—how many colonies you have, what they are worth; keep an account of your expenses — hives, sections, etc.; and when you have sold your honey, see how much you sold it for, and how many pounds you had. If you would sell your honey as Mr. Root told in last GLEANINGS how to sell lettuce and radishes, I should expect to hear that your bees paid, and that you all have money in your pockets, and shouting to your mates, "I've got money! I made it myself from my bees." MRS. L. HARRISON.

Peoria, Ill., March, 1886.

Many thanks, Mrs. H. Your remarks are just to the point, and I can heartily second all you say. We will try to put your suggestions into effect. Will the juveniles please take notice? At the close of this season, to any little girl or boy who can send in a good report as the proceeds of *his own* work and *his own* bees, we will send one of our large panel chromos, and they are beauties too. Now, some of the little folks have no bees of their own, so I hope the parents will help such by giving them a pound of bees or a whole swarm, thereby cultivating habits of enterprise and business at the start. If the father has several children interested in bees, let there be a stock company whose capital shall be a swarm of bees. This will be something like the company of Jane Meek & Brother, of whom we read in GLEANINGS. At the close of the season, when one or more swarms have been cast, the children can pay back the borrowed capital, and, very likely, have enough bees and honey left to fully pay them for their season's work.

Now, little friends, if you will tend right up to business it will not be long before you can say, "I've got money, and I made it myself from my own bees." You will then recognize the value of this money, if you ever did, and put it to some very good use. How many young enterprising bee-keepers shall we have? Who knows but that you may outrival some of the best reports of the older ones? ERNEST.

THE MOHAWK VALLEY.

HOW TO MAKE HONEY CAKE.

HAVING left my bees to the care of friends, that I might spend the winter in this historic Mohawk Valley, I have thought the juveniles might be interested in hearing of this part of the country.

Do you know that, thirty-nine miles from Albany, is a cave called Howe's Cave, a place of considerable interest? The temperature inside is always 55°.

This valley is quite remarkable as a great thoroughfare between the East and the West. Many people, and quantities of merchandise, pass through it daily. On either side are the steep hills, covered with evergreens and other trees, with bare rocks peeping out here and there. Following the road as it winds up the hill we have a fine view of the valley and the distant hills. At the left is the village of S. Below is the wagon-road, and just beside it are the double tracks of the West Shore R. R. Next is the famous old Erie canal, along which, all summer, may be seen the horses dragging the odd-looking boats through the water.

On the decks may be seen men, women, and children, and sometimes the family washing is hung out to dry as they go. In the winter the canal furnishes skating and sleighing. Beyond the canal are the flats, the river, the four tracks of the N. Y. C. R. R., where you can see a train at almost any time; another wagon-road, and then the hills again; and down these hills the streams leap and rush as though they were, indeed, hurrying to the sea.

The juveniles would find these streams, with their rocky bottoms and pretty falls, delightful places for play.

Back among the hills, and surrounded by them, is a fall of water over ledges of rocks. Near by are several houses, much too shabby-looking for this beautiful place. Near one of them I saw three bee-hives. I can learn but little of the bees about here; but about three miles away is Mr. Nellis, whom a bad boy in the postoffice caused so much trouble with the bee-keepers; also another gentleman of whom I heard it said, that he built his house and barn with money made from bees.

Near by is an old stone farmhouse with an old wood-house near it. From my cousin I learned that her father once partitioned off a little room in the chamber, put in some shelves and a swarm of bees. When the weather was quite cold they would go in and cut out honey. Sometimes it was nice and white, and sometimes not. After a time the bees died, "as all bees will." They used to make good honey cakes from the first of the following recipes. The others they do not remember to have tried.

HONEY CAKE.

Two teacups of honey; 1½ teacups of butter, a good teaspoon of saleratus dissolved in two tablespoons of water. Mix soft, with flour enough to roll; caraway seeds. Then roll them over a fancy board.

HARD HONEY CAKE.

Twelve ounces of butter, one quart of honey, a teacupful of sugar, a tablespoonful of saleratus dissolved in water. Mix this cold with flour to roll soft and thick.

HONEY CAKE.

Twelve ounces of honey, one pound of sugar, and one pound of butter; a tablespoonful of saleratus, and raisins halved and stoned.

Sprakers, N. Y. MISS L. WILLIAMS.

Your graphic description of the scenery along the N. Y. C. R. R. reminds one forcibly of the landscape and scenery along the side of the road when traveling by rail, Miss W. It has often seemed to me that those homes among the hills, with their many beautiful springs and delightful streams, must be a happy place for the children to play. The temperature of Howe's Cave seems to correspond exactly with that of Mammoth Cave, even though it is considerably further north. Now, is it not true that most caves, where they go far enough into the earth, average pretty nearly 55°?

USING THE EXTRACTOR WHILE TRANSFERRING.

REPORTED BY A JUVENILE.

WALTER got his honey-extractor about three days ago. Yesterday he made a comb-basket out of some wire cloth. Last night he transferred a hive of bees. He carried the hive into my room, and we all went in to see the fun. He then tore off the side of the hive. Their tempers began to rise, but we used the smoker and cooled them down. He cut out a piece of comb and put it in his comb-basket, and put it in the extractor and tried the extractor for the first time. He did not want to screw it to the floor, so he and Fred tried to hold it down while they extracted; but it hopped about almost as lively as a flea. Walter took out the combs and uncapped them with his razor. He declared he was going to send on for your uncapping-knife. Fred and Frank got the extractor up in the corner, and did the extracting, and handed the combs to Florence, and she fastened them in the frames. This is what I did while they all were at work: I went in there where they were at work with the bees, and stayed about ten minutes and got one sting. I thought that was enough for me, so I left the room, and about one hour afterward I got hungry for some more honey, and I went to the door and got Frank to hand me a taste of some; and before I got out of the door, another bee stung me, and I tell you I got away from there in a hurry, and did not go back there soon. It took Walter until 11 o'clock to get through with the bees. He is going to transfer another hive to-night.

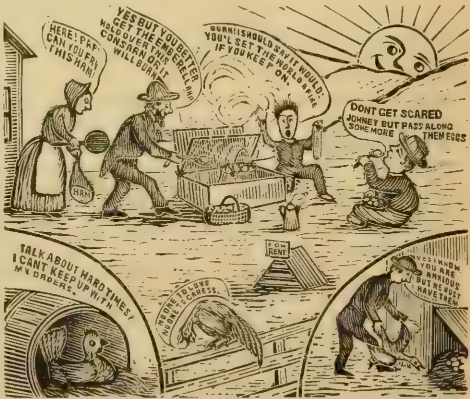
ROSALIE SOMERFORD.

Navasota, Grimes Co., Tex., Mar. 2, 1886.

"A MIDSUMMER-NIGHT DREAM."

SOLAR WAX-EXTRACTOR, AND ITS ASTONISHING UTILITY IN COOKERY.

EATING mince pies and maple sugar just before going to bed doesn't always make little folks sleep very soundly. So with friend Johnny; he lies and tosses in his bed; he thinks of every thing, and finally his mind reverts to what he has read in GLEANINGS, and he wonders why maple sugar couldn't be boiled down very cheaply in one of "them things." Why couldn't a patent evaporator be arranged so that the sun would do the whole business? He wouldn't have to chop nor carry wood any more; and wouldn't that be fine? Thinking thus he goes to sleep, and "a midsummer-night dream" creeps over him. Then he thinks his pa and his ma are cooking breakfast by the aid of old Sol, who smiles pleasantly upon the scene. But there is generally something a little inconsistent in every dream, and Johnny's was no exception. You see, the sun has just poked his grinning face over the mountains, and he would hardly have time to get the eggs boiling; but that makes no difference, for it is only a dream. Johnny has sent us a picture which tells the remainder of the story very vividly, and here it is.


HERE! PAP' CAN YOU FRY THIS HAM!
YES BUT YOU BETTER GET THE EMBERELLAND HOLD OVER THIS CONSARN OR IT WILL BURN
BURN! I SHOULD SAY IT WOULD: YOU'L SET THE WORLD AFIRE IF YOU KEEP ON.
DONT GET SCARED JOHNEY BUT PASS ALONG SOME MORE THEM EGGS
HAM
FOR RENT
TALK ABOUT HARD TIMES? I CANT KEEP UP WITH MY ORDERS.
NO ONE TO LOVE NO ONE TO CARESS.
YES I KNOW YOU ARE ANXIOUS BUT WE MUST HAVE THEM

JOHNNY'S DREAM.

Next morning, Johnny comes down stairs with eyes all blood-shot, and lids swollen. He has a pain in his digestive apparatus, and he thinks that boiled eggs are more substantial than pie and maple sugar.

ERNEST.

JUVENILE·DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

> "A chiel's amang ye takin' notes;
> An' faith, he'll prent it."

I HAVE just been out watching the bees. Did you ever see them working in the rye meal, how they make their little loaves of bread, and pack them on their hind legs to carry home to their baby-bees? It is really funny to watch them; but just how they make their bread, and how they get it on to their hind legs, is a little hard to tell. I declare, after getting down on my hands and knees in the dirt, and watching with all my might, till my eyes and back fairly ached, I had to confess that I didn't know much more about it than I did before. On their hind legs the little loaf, or pellet of pollen, seemed to just grow by some sort of sleight-of-hand that almost baffled me. A bee would fasten his fore feet upon the edge of the tray, or a chip of wood, and then commence a vigorous kicking with his heels, in the white dust, all the time rubbing his hind legs together as if to grind more finely the particles of meal. Then, by some strange means, that little loaf of bread began to grow in the pollen-baskets.

Now, little folks, I want to know how it got there. I could tell, perhaps, if I watched for days at a time, but I haven't the time, and so I call upon you for help. In your letters, tell me about it. Now is a good time of the year to settle this matter, if such a thing be possible. If you haven't a tray of meal, see the A B C book, page 190, under head of "Pollen," for directions for starting the bees on the rye flour. If you don't learn any thing by it, you will find it great fun at any rate. You will see no prettier sight, and their happy hum at the opening of a new season is sweeter to me than the notes of the birds in spring. By the way, little folks, don't you believe the bees have *their* way of praising God, like the old biddy, when she sings on a warm summer's day. Perhaps they don't know from whom these blessings come, but they are happy nevertheless.

FLY-TRAPS, AGAIN.

Our little fly-trap is dead. Yes, he actually ate so much that it made him look sick. I wonder if he had the dyspepsia or the gout, or was the diet of green flies unwholesome? At any rate, the little fellow did the best he knew how, and was faithful to the end. We now have about half a dozen more to take his place, and the way they do make those naughty bugs disappear is almost wonderful. They really enjoy the fun, I believe; and when they fall off the beds they will tell us, in the best way they can, that they want to be put back on. If you should go through our greenhouse some time you would find that the plants are stripped of bugs as far as the chickens can reach; but there are not many plants above their heads, so they manage to get pretty nearly all.

ERNEST.

GOING TO MAKE A VINEYARD APIARY.

Pa has 20 colonies, and has the most in chaff hives. He has the most of them Italianized. Pa thinks the Italian bees are very kind, and exact in their work. He is going to make a vineyard as it shows in the A B C book, with a windbreak on the west side. The swarms will have a pleasant home. Last winter we made our hives by foot-power; but this winter we are going to drive it with horse-power.

Bluffton, O. NOAH WELTY, age 13.

DO BEES LIKE RED-PAINTED HIVES?

My father has 30 hives of bees, and raises a great deal of honey. He raised about 500 lbs. of comb honey in pound sections that he bought of you, and sold them from 18 to 20 cts. a pound. The extracted honey brought him 12½ cts. a pound. The bees wintered outdoors, and only one colony died this winter. The honey is mostly made from lucerne, and is of a light color. It is very good. We children like it. Do bees like red-painted hives? Father had two swarms fly into the only red-painted hive he had. Father intends to send for some queens this summer, if they can be sent by mail.

CAROLINE A. FOLKMAN.

Plain City, Weber Co., Utah, Mar. 14, 1886.

The facts you give, friend Caroline, seem to indicate that bees do like hives painted red; and no doubt red hives would be good for them in the *spring*, because the dark color absorbs the heat of the sun more than if the hives were white. I have never been really satisfied that bees notice *colors*, but I am satisfied that they can *smell*, *right well*. Last week, some hyacinths were blooming in the greenhouse; and the wind carried the perfume out of the open door. So many bees flew in and got imprisoned on the glass, that I was obliged to carry the hyacinths out in the open air. After that, not a bee entered the greenhouse.

HONEY AND BURNT ALUM FOR COLDS.

I don't know any thing about bees, but I know that honey and burnt alum is good for children when they have a cold. AMANDA STULTS, age 9.

New Helena, Custer Co., Neb.

Thank you, little friend. After our experience with the croup that I spoke of last month, I was told by a friend who has had considerable experience, that we ought to have given Arthur honey and burnt alum, the same remedy you recommend. I wonder if this is generally considered good for colds. ERNEST.

WILL AN ENTRANCE CLOSED WITH ICE DURING THE WINTER, RESULT IN DEATH TO THE SWARM ?

My pa's bees increased from 3 to 6, and gathered 110 pounds of cap honey. One of his swarms had a fly last Tuesday. When they got into the snow, the chickadees would pick them up and eat them. The entrance to one hive got closed up with ice. Would the bees have died if pa hadn't opened it? They had a chaff cushion over them. CARROLL P. MINER.

Taylor Center, N. Y., Jan. 28, 1886.

It is a little hard to say; at all events it is much safer to have the entrance in winter unobstructed, and full width. ERNEST.

A POOR CALF IS A VICTIM THIS TIME TO THE BEES.

I like bees. Papa bought two hives in the spring. He increased to 7 swarms, besides 3 which went to the woods. My papa is a brick-maker and a farmer. I have a little brother three months old. His name is Huber. Papa got the name out of GLEANINGS. I was sitting in front of the bee-hives one day last summer. One of the bees walked up my sleeve and stung me. Mamma tore my dress to get it. Papa had a calf tied under a tree near the bee-hives. Papa was working with the bees. They got cross at him and chased him into the root-cellar. Then the bees went for the poor calf. Papa went out and untied the calf, but then it was so frightened that papa could not hold it. You ought to have seen them run through mamma's garden. The onions and my pretty flowers were all alike to him.

TESSIE A. TAYLOR age 10.

Shelby, Oceana Co., Mich., Feb., 1886.

No wonder the poor calf got demoralized, and made a raid through your mamma's nice garden, and I am not sure that "more rope" would have been of very much service either. I verily believe that the next report of this kind will tell of the lusty squeals of some poor unfortunate pig that has been sticking his nose where he ought not. Bees will not, as you know, allow their homes to be tampered with; and should some burly hog poke his great snout near their homes, I am afraid our big fat friend would fare the worse. Let us be careful, little folks, of these dumb friends, and keep them away from the bees. ERNEST.

"WHAT IS GOOD FOR RATS IS GOOD FOR CHICKENS;" A NAUGHTY ROOSTER.

My pa, with his incubator and a brooder, raises lots of chickens. The rats bothered our chickens some, and pa got some poison for them. He put it under the floor, and my little brother Charley got it and gave it to the chickens. He said if it was good for rats it was good for chickens too; but it killed the chickens. I am at my grandfather's, in Galion. He keeps bees, and takes GLEANINGS. The bees were working like every thing last week. They flew well in February, and on the 11th of that month they gathered lots of pollen. Grandpa says he never saw bees do that before. He thinks they got it at the flour-mill. Last spring he had but one colony, and this winter he has seven. Grandma thinks honey and butter warmed together is one of the best things for a cold that she can get. Grandpa felt very bad when he heard of the fire you had. He heard that all your shops were burned down, and he thought he would not get GLEANINGS any more; but he was very glad when he heard it wasn't any worse. BERTIE M. MUMFORD, age 9.

Galion, Crawford Co., O., Mar. 22, 1886.

What is good for little girls is good for little boys; what is good for chickens is good for rats; but what is good for rats is *not always* good for chickens, as experience tells. Last summer the rats were eating more of the chicken-feed than the hens did. I determined that I would get rid of the nuisances, so I put some "rough on rats" in one of their holes. But the sly creatures seemed to think that what "was good for rats was good for chickens," so they pushed it out of the mouth of their hole. I happened to pass by about ten minutes after, when, lo! the large Brahma rooster was trying to get his biddies to eat some of the poisoned bread at the mouth of the hole. Quickly jumping the fence I gave one big "shoo," and made a lunge for the lord of the feast. The hens, like good biddies, ran off; but the old rooster—do you think he did? No, sir; he tried hard to swallow a big chunk of the poisoned bread. I chased him around the poultry-house, and yet he persisted in his efforts to swallow that chunk of bread. Finally, as a last resort, I "knocked the wind out of him," as the boys say. This so disconcerted his lordship that the bread shot out of his mouth. Do you think he felt grateful toward me? Not a bit of it. Like little boys who have been punished for things that they ought not to do, his wonted pride changed to an air of injured innocence. So, little boys and girls, when you have been punished for taking or meddling with things that you ought not, remember the story of the rooster, and think what it may have saved you. The rooster's punishment saved him.

Thank you, little friend, for what you say in regard to honey as a cure for colds. Our grandmas are pretty good judges of "what is good for little folks," and no doubt honey and butter will prove very effective.

ERNEST.

HOW TO PREVENT THE RABBITS FROM GNAWING THE TREES.

I would have told C. H. Sargent, page 829, 1885, how pa keeps the rabbits from the small fruit-trees, but I could not have sent him word in time to do him any good this winter. My pa slips a drain-tile over the tree. This protects it from "varmints" in winter, and does not need to be removed until the tree fills the tile. If longer tile is wanted it may be ordered at the kiln.

JAMES SHENEMAN, age 13.

Pharisburg, Ohio, March 15, 1885.

The drain-tile would answer very nicely, but I should think that they would be rather expensive; and when the trees get big the tile would have to be broken to get them off. We are not troubled with wild rabbits in this section of country to any extent; but we have had some experience with Huber's tame rabbits. During the past winter we have kept them in our poultry-yard, where are several small evergreen trees. From these the rabbits stripped the bark as high as they could reach, although they had a great abundance of cabbage-leaves and other waste vegetables. We had to send them all back to friend Fradenburg, of whom we got them. They were handsome pets, but we can not afford to have our property injured.

ERNEST.

JUVENILE PROOF-READING.

Dear Mr. Root:—I have sentences to write and correct every day at school, and I thought I would try to correct Joseph's letter, page 150. I find 26 errors.

My "intelligence" is so little, i [I] do not no [know] of any thing to write that will interest [you], but you must excuse this one, as it is the first. I like to help pa [Pa] work with [in] the bees, except such a one as that cross hybrid stock that stung pa so much threw [through] his Briches [breeches] and run him off to the spring and me under the flore [floor]. They drove the young mule colt that was 30 feet away, and made him kick and snort; his hare [hair] was long, and they tangled in it, but he soon flew [ran] away and "brade" as he run. Pa says the holy land Bees will suck 3 flours [flowers] while the i[I]talians will suck 2; he says they do not fool time away in Buzing [buzzing] a Round as the i[I]talians do. We keep sawdust 3 or 4 in. deep in our apiary; the ants and frogs will not work in it, the frogs have no place to hide as the dust keeps [keep] the weeds down; a frog will eat 50 bees, if he can get them. so much for sawdust. The Pecan [Pekin] Ducks has [have] a good chance to ketch [catch] the moth miller between sundown and dark. The ducks go among the hives every evening and ketch [catch] every miller that flies; no grass in thear [their] way, so they always lit on Pekins. every one that fly [flies]. These ducks is [are] worth keeping for this alone; besids [besides] each duck will lay 200 large egs [eggs] every year, then they weigh 15 lbs. to pare of 2 [a pair]. The feathers is [are] beautiful and white, and the meat is as nice as chicken. So come and see us and wee [we] will have a big fat one for dinner.

HENRIETTA P., age 11.

Bayou Sara, W. Fel. Par., La.

Here is what our proof-reader says :

Well, Henrietta, you have done very well indeed. Your points of order are all well taken, except three. Let us see what they are. You want Joseph to spell "pa" with a capital P. That is an error which nearly all the juveniles make. They begin by saying, "My Father keeps bees." In that case, "Father" means God; hence, pa with a small *p* is correct, except when it begins a sentence.

You want Joseph to say that he works *in* bees. That would be a very small workshop for Joseph, as well as quite a burden to the bees. Let us suppose, for instance, that we make it read, "I like to help my pa work *among* the bees;" wouldn't that be better? I think the popular prejudice would be in favor of the preposition *among*, although the same idea might be expressed in other words.

Joseph says, "Dust keeps the weeds down;" and you correct him by saying, "Dust *keep* the weeds down." Your error here is so plain that you will readily see it, so you have only 23 scores against Joseph.

But after all, Henrietta, you have left so many errors unmarked, that, if we should print Joseph's letter with your corrections, it would be just about as bad as ever; for when a coffee-pot has several hundred holes in it, and you solder up only 23 of them, it will leak as fast as you can pour water into it, and hence is unserviceable. You have paid little or no attention to the punctuation and many other features which printers are called upon to look after. If the editor thinks it worth while, we will, at some future time, reprint Joseph's letter just as we would have marked it for our regular use, and then please tell us how many changes we have made, and whether you think our changes are real improvements.

I will explain that Henrietta's corrections are inclosed in brackets so our readers will see how well she has done her work. Well, *I* think she has done pretty well, considering that she is only 11 years old. We insert the above from our proof-reader to show the amount of work required on some of our juvenile letters. As a general thing, however, you little folks send us as good copy, if not better, than many of the older ones.

ERNEST.

MAKING GRANDPA HAPPY.

I noticed in GLEANINGS for Feb. 15 a letter signed Joseph S. G. According to my count there were 24 errors in all. My brother Will has taken GLEANINGS for about two years. I read the children's letters. Papa and brother Will have 28 hives of bees. I am afraid of bees. Whenever a bee comes near me I run. My little brother Oliver Hazard, who is six years old, is not afraid of them, though. In the summer he goes all about among them, without any thing over his face or hands.

We take the following papers at our house. My papa takes two county papers. My brother Will has the *Youth's Companion* and GLEANINGS, and I take *The Ladie's Home Journal*, so you will observe we have plenty of reading-matter. There are five children in our family—four boys, and myself—two older and two younger than I.

Grandpa is an invalid. He was a soldier in the late war, and I find great pleasure in helping pass the time away by reading to him.

I lost all my my house-flowers this winter by freezing, and they were nice ones. Our canary birds are dead. The house seems different without them. I am wishing for summer to come, so I can have lots of flowers out of doors. There are lovely ferns in the woods near our house. in the summer.

LIZZIE PERRY, age 11.

Van Wert, O., March 14, 1886.

Thank you, little friend. There are one or two things of interest in your letter, to which I wish to call attention. You will see that your count of the errors found in Joseph's letter agrees very nearly with the count of Henrietta, found in another place. Notice there what our proof-reader says.—You say that you take several papers. If you read them all, you certainly will derive a good deal of benefit. One who has read considerable, always shows it; and I will say, for your encouragement, that your letter is unusually free from misspelled words But, do you know what interests me more than all? It is your kind attention to your grandpa. You say you find great pleasure in helping pass the time away for him. We always find "great pleasure" when we try to help others; and a bright-eyed little girl, such as I take you to be, can be a *great* comfort to grandpa. I remember the time when I had two grandpas, but they are both dead now ; but I have one dear old grandma living now, and her silvery-gray hairs are loved by every one. What is the text—"Honor thy father," etc.? You know the rest. ERNEST.

ONLY ONE COLONY DEAD OUT OF 300; REGULATING THE TEMPERATURE OF A CELLAR BY MEANS OF STANDING WATER.

Pa says some folks put a stove in their bee-cellars to dry them out. He puts water in, and he says it is good for them. The water has been about one foot deep in the cellar since Dec. 1st. Pa says there are 299 colonies alive, and one dead, in his cellar now.

JEANIE B. BLANCHARD, age 11.

Hilbert, Calumet Co., Wis., Mar. 17, 1886.

Well, Jeanie, you have given us a big fact in favor of a body of water in the cellar. People who have worried for fear the dampness would kill their bees, ought to be satisfied that dampness does not always prove injurious, for where can we get a better report than the one you have given us?

TEMPERATURE OF BEE-HOUSES.

Pa has two apiaries. It is a very cold winter but, pa's bee-houses are warm. My oldest sister keeps one of his apiaries, six miles from where we live. Pa has nearly 200 swarms. Pa says last year was only a "middling" one for honey. His bees are wintering well so far. Pa's bee-house is above ground, thick walls of sawdust, two upward ventilators, and one underground in each house, so he can keep them at an even temperature of 40°, which he thinks is the best. NELLIE MOFFATT, age 9.

Riceville, Ont., Canada.

KIND WORDS FROM OUR CUSTOMERS.

I will third Mr. Viallon's offer, by giving an untested queen to the one who gets the third largest club for GLEANINGS. I will also give an untested queen to the one who sends me the first $3.00 order for goods, by June 1. L. J. TRIPP.

Kalamazoo, Mich., March, 1886.

I may say, that I never lose an opportunity of speaking a good word for GLEANINGS, as well as for the "Home of the Honey-Bees;" but I believe I have already induced all to subscribe who *care* to keep posted on bee culture. The rest do not feel the want of progressive knowledge.

Independence, Cal. WM. MUTH-RASMUSSEN.

KIND WORDS IN REGARD TO TRIALS AND AFFLICTIONS.

I was very sorry to learn of your loss; but your article in GLEANINGS satisfied me that I was sorry too soon. Really, I am not glad that you are burned out, but I am glad to see you were put in such shape that you could write that article. Even Paul needed to be afflicted that he might learn "to comfort others with the comfort wherewith he himself was comforted of God."—II. COR. 1: 4.

Perrysburg, Ohio. G. A. ADAMS.

WHAT SHALL BE DONE WITH HONEY CANDIED IN COMBS?

The bee-goods, etc., ordered from you on the 22d ult. arrived in due time, and all reached us in good shape. We found every thing according to order, as we always have, since we commenced dealing with you in 1880. A five-cent article gets as much attention from you as a five-dollar one. The goods are all quite satisfactory.

Bees have wintered well here so far; they had good honey last year. What is the best way to dispose of honey that has candied in the comb?

Brady's Bend, Pa., Mar. 8, '86. JAS. SOMERVILLE.

[The best way to dispose of honey that has candied in the comb has never been agreed upon, friend S.; but you will find considerable in regard to the matter in our back volumes. It depends upon whether it is honey in sections, or honey in ordinary brood-combs. If the latter, I would make the bees use it up for brood-rearing during warm weather.]

THE RELIGIOUS TALKS IN GLEANINGS.

Your wishing your friends success, whether they patronize you or not, is something I like. The fault that some of your patrons find with GLEANINGS, viz., that it contains your sermons and religious discourses, is one thing that makes me more desirous to subscribe. I have very little hesitation in saying that, had you listened to them, you would have made a gross mistake in many ways.

Sherburne, Ont., Can. JAMES FENNELL.

GLEANINGS AN OLD FRIEND.

I can not do without GLEANINGS. It would be like parting with an old tried friend, whose smiles and voice of love awaken joyous memories of other days. The first visits GLEANINGS ever made to my home cheered me through the darkest period of my life (the last sickness and death of my young and beloved wife); its cheerful words and kind admonitions have made me better; its influence is for good. Consider me its true friend. Your brother in Christ, J. E. LAY.

Hallettsville, Tex.

HOME PAPERS AND THEIR WORK.

I am glad you are taking the liberty in your valuable journal to do some work for the Lord. Your teaching is sound and practical. Go on, brother Root; do all the good you can, and may your noble and gifted son even exceed you in the glorious work of turning people from darkness into light, and from the power of Satan unto God. I was converted about 20 years ago; but only for the past few years have I been strong enough to be a bold servant and witness for Christ. H. S. HOXIE.

Holloway, Mich.

WHAT AN ATHEIST THINKS OF GLEANINGS.

GLEANINGS is just right. If it were not so, I would try to find a paper that is. That, I call common sense. Your talks on religion suit me to a T. Although myself an atheist, I like to read and learn about all sides, if it is presented in a common-sense way. I love to read what the Christian has to say, if he only says it in a *kind* and reasonable way. I read very nearly all of GLEANINGS every number. As far as bees are concerned, I consider you good authority, and try to improve by your teachings. I take other bee-journals also. The goods I had ordered of you some time ago came all right and perfect; all gave perfect satisfaction. I shall need some more supplies this winter, and you will get my order in due season. L. W. LIGHTY.

Mulberry, Pa.

SOME KIND WORDS IN GOOD EARNEST.

Dear Friend:—Though not personally acquainted with you, I can not help regarding you as one of my greatest friends; for mainly through your kind advice in GLEANINGS I have been changed from a reckless person to a—I will not say *Christian*—but I have been earnestly trying to be one. I do not wish to take up your time, but must give you thanks, for you are justly deserving.

My bees, 20 colonies in all, are doing nicely, with the exception of one or two, rather weak. They are in chaff hives. The winter has been rather severe here. I neglected to renew my subscription for GLEANINGS, on account of building a new house, which took most of my time, and money too. My leisure hours are principally spent with bees and GLEANINGS. ALEX. SMITH.

Setauket, N. Y., Mar. 27, 1886.

[Friend S., you have made me happier by the above report than if you had told me I had helped you to become a rich man; yes, more than that. I think more of such testimonies than I do of orders amounting to great sums of money; for while the orders may help to make me rich in dollars and cents, the report indicates that my labors have helped you toward the kingdom of God and his righteousness, and this, you know, is laying up treasures in heaven. Jesus said to his disciples when they came back, "Rejoice not that the spirits are subject unto you, but rather rejoice because your names are written in heaven." And now, my dear friend, if you have confidence in my ability to still guide you, do not, by any means, stop where you are. If you are not united to some band of Christian people, go at once and tell them you want to be one of them in doing Christ's work. Do not, under any consideration, or any circumstances, neglect this. "United we stand, divided we fall."]

OUR HOMES.

Therefore I take pleasure in infirmities, in reproaches, in necessities, in persecutions, in distresses for Christ's sake: for when I am weak, then am I strong.—II. COR. 12: 10.

And be ye kind one to another, tenderhearted, forgiving one another, even as God for Christ's sake hath forgiven you.—EPH. 4: 32.

IN both of the above little verses you will notice the expression, "For Christ's sake;" and it is about the words, "for Christ's sake," I wish to speak in this talk. You know we who profess to be Christians claim to be living and working for the sake of Christianity and for the sake of the Christian religion; or, to put it short, for Christ's sake; and I suppose that you know that even the best of us waver a good deal, both one way and the other, from the straight line that would be made if we were truly working and thinking and doing every thing for the sake of Christ. It is true, we get in something almost every day, probably, for Christ's sake; but there is mixed in, and stringing along with it, a great deal that is *not* for Christ's sake. In *my* life, I should say there is a good deal that (as I review the events that have passed by), is a *good way* off from that straight and narrow line of "for Christ's sake." Somebody does some ridiculous thing, because his mind was not on his work, perhaps, or, may be, because he hadn't thought much about it, and it is my business to reprove or correct him. How shall I do it? Why, do it in such a way that it will further the cause of Christ, to be sure. It is my duty to consider well before saying any thing, whether the course proposed is going to tell directly for the Master, or whether it is going to tell some other way. I might say:

"Look here, you senseless idiot; what do you mean by fooling away your time in that way on something that is of no sort of use to anybody?"

I guess I have drawn it pretty rough, haven't I, friends? There may be people who feel *prompted* to speak like the above, but I hope there are not many who give way to such promptings. Satan does prompt just such thoughts as these. I know by experience; for sometimes, when I am worried and fretted, and find that time and material have been wasted, it seems to me as if a speech set somewhat like the above would be just the thing exactly. But I feel guilty and bad after I have let such thoughts come into my mind. It is *dangerous* to contemplate such ways of speaking. People who are addicted to profane swearing often mentally run over the words they would like to say, although they do not utter them out loud. It *is* a good thing, friends, to keep your thoughts to yourself, even if you don't do any better, at such times; but it is a far better thing not to let your mind run on such thoughts. Well, if the above expression is not the right one under such circumstances, how will this do?

"MY PATIENCE, child, there isn't any sort of need of doing that at all. Here you have wasted half an hour on something that is of little use to anybody. Do it this way."

The latter is better, and might not hurt the feelings (at least very much) of the average boy or girl who had erred in judgment. But there are some, especially those fine sensitive natures, who are very anxious to do every thing just right, who would feel a great deal hurt at even the last form of expression. Yes, I know by what I have learned, that it might cause them a sleepless night, and perhaps spoil all pleasure and enjoyment for the rest of the day. Some of you may say a little impatiently, "Why, Mr. Root, you are putting too fine a point on these things. Children must be talked to a little sharp sometimes, or they won't heed or pay any attention to what you tell them."

Well, perhaps it is true that *some* children must be spoken to sharply. I say *perhaps* it is true, for I am not quite sure in my own mind after all. The point begins to come out here, that, to be a good teacher or a good employer, is one of the fine arts. It is *indeed* one of the *fine arts*, my friends, to work constantly, daily and hourly, for the sake of the Master. Do you want me to tell you just what form of speech ought to be used? Well, I will attempt it; but you will have only *my* wisdom for it, after all. Although I have been tolerably successful as a teacher (under the great Master), there are doubtless many who could improve on any thing I could frame for such occasions. In the first place, you ought to know the disposition of the child or pupil with whom you are dealing. You ought to weigh very nicely the motives that led him to make the mistake. May be it came about because he was anxious to do every thing well; and, on the other hand, it might be because he didn't care—because the work was distasteful to him, etc. How would this do?

"Why, my little friend, I ought to have come around sooner to look after your work. You did not quite get my idea in regard to it, I see. Let me show you."

Now, some might think a part of the above sentence was a big fib, where I told him he didn't "quite get my idea," because, to tell the truth about it, the child hadn't got "within a mile" of what was wanted or expected. Well, if you are disposed to call such forms of expression "fibs," I should say such fibs are a pretty good thing. It is simply softening the form of expression so as to give your pupil to understand that the offense is not one of such great moment, even though it might be a matter of considerable loss, and the motive for so doing is, that the child may be guided to better ways in the shortest and simplest way. Scolding children, hurting their feelings, stirring up a bitterness in their little hearts toward yourself, is a long and *roundabout* way of teaching them to be clever and handy about any kind of work. *Gentleness* and *kindness* (see text), compared with the above methods, are a short cut through the troubles and trials of this world. "For Christ's sake" is a *short cut*, my friend, not only through all the difficulties and perplexities you meet here on earth, but it is a short cut from earth to heaven, to the home of the Father.

Now, in the preceding cases I have supposed we were talking to a child. Let it be "children of an older growth" for the time being. We are all of us employing somebody. You employ your grocer to keep such things as you need, and at such time as you need them. You employ the dry-goods dealer, the blacksmith, and the shoemaker, in the same way. They are serving you for wages. They misunderstand, or perhaps get lazy and indifferent; they forget; they burden you with grievous burdens, may be. A shoe that does not fit; is too heavy or too light; the meat is not fit to be sent to anybody. You don't tell the butcher so to his face, but perhaps you say it to some one of the household. What is the best way to right these wrongs? The way your good sense will dictate when you start out to do it for Christ's sake.

Paul says he takes pleasure in *infirmities.* I wonder if he meant a badly fitting shoe that pinched some tortured corn. If he got pleasure out of such an affliction, he certainly was a good and faithful servant. He took pleasure in *reproaches.* Did you ever have anybody call you names, or revile you? If so, did you look pleased? If they called you names because you were good, and because you were trying to be a Christian, you ought to have felt happy. I do not know that it would be a Christian duty to look up at your persecutor and smile, because you might thereby make him madder still, and defeat the object in view; namely, to call out his better spirit, and make him a Christian. Paul says, also, that he took pleasure in his *necessities.* Have you any necessities, my friend? Are you pinched or scrimped anywhere? Are you worried and tried? Take it for Christ's sake, and you may be serene and joyful.

May be you have been tried and vexed because there is so much time and talk wasted in this world. I grant that there are a great many false motions; that is, there is a great deal of work done that is just a form, and accomplishes nothing. There is a great deal of talk going on, too, that is idle talk. It does not do a bit of good anywhere. In these days, when economy is so much needed, how very desirable it is that nothing should be wasted! I enjoy saving. It is really a pleasure to me to get some good thing out of nothing. I like to pull up a weed and make a tomato or strawberry grow in its place. I like to take the heaps of ashes that disfigure the landscape about our homes, and make them help raise the above-mentioned strawberries and tomatoes. I like to gather up the old tinware that is kicking about — bits of hoop iron, broken crockery, and all that sort of rubbish, and put them into the reservoirs to hold water, down under that same strawberry or tomato plant. It is real fun and enjoyment to me to gather up what everybody else passes by, and make it do good somewhere. In the same way I greatly enjoy taking the surplus energy of some mischievous, meddlesome boy, and utilizing it so as to do good somewhere, instead of evil — starting him to setting out plants, for instance; give him a frame so he can set them in rows at equal distances, without any possibility of having the work look crooked and awkward, and then see him smile when you tell him how beautiful is the work of his own hands, and let him follow it out and see the good that follows from it. In almost every neighborhood we have talkative people. Their tongues get to wagging, and they so enjoy letting them wag that they never accomplish any thing anywhere. I have sometimes thought they were worse than old tinware and hoop iron. But I have found a use for them. We don't bury them to make reservoirs (their tongues, I mean), but we find them a place where somebody is wanted to do a great amount of talking. During certain seasons of the year we have a great number of visitors in our establishment. They want to look around, and they want somebody to talk to them, and tell them all about things. Now, since the new agriculture has come on to our grounds there are more things than ever before to talk about and explain. Almost anybody can show visitors around, and make it pleasant by explaining things, say for one day; but who is there who wants to go over the same thing the next day, and the next, and so on? Why, all that is needed is one of these people who are so excessively fond of talking and visiting. This love of talk comes right in play here, and is just what is wanted. Instead of getting out of patience, and calling them names, let us use these talkative propensities in such a way that they will work for Christ. Is it working for Christ to entertain visitors? Most surely it is; and where the spirit of Christ has found lodgment in the heart of a great talker, this tongue that might otherwise be working mischief is a powerful factor for Christ's sake.

Of late there is an overplus of people wanting employment. People object to going into this, that, and the other industry, because the product brings so little on the market, or because it requires such diligence and such strict economy to come out whole. One must work from morning till night to make both ends meet, and he does not get ahead even then. Yes, I know it is so; but I am inclined to think that this very thing is a part of God's plans. He wants to teach us over and over again, as he taught the children of Israel, by line upon line and precept upon precept, that there is no excellence without great labor. He wants us to learn to clip off useless expenses, useless motions, useless talk, and useless reading. My friend, if you have leisure on your hands, so that you can sit down and read from morning till night, it is a misfortune for you. I do not see how we can be good Christians unless something spurs us all the time to be throwing away the useless and selecting only the best. Pick out that which is for Christ's sake, and throw away the other. When you feel like giving somebody a big blowing-up, remember you have not time, and it won't pay. Sift out the phrases and expressions you are going to use that are for Christ's sake. Leave the rest unsaid. Then shall you have treasure laid up in heaven. Never mind feelings of spite or revenge; never mind the gratification of having "relieved" your mind. Let it go without "relieving." Say just what will do good and help the matter, and nothing more. If somebody has gone and done something wrong, be careful to decide, before you say any thing, what will help the matter; and what will *not* help the matter, let go. If the same individual is to do the same work again, he needs to be carefully instructed not to fall into the same error the second time. If, however, as is often the case, it is something he may never have to do again at all, accept the job as it is, and say nothing more about it. Never hurt anybody's feelings by complaining or criticising, unless something is somewhere to be gained by it. The fact that you will *feel* better for having relieved your mind is not to enter into the consideration at all.

Is it not true, that the reason why we fail to accomplish in a day what we have proposed is often because we have wasted time in the way I have mentioned? Instead of having labored steadily for Christ's sake, some selfish plan or selfish appetite or passion got in the way, and we stopped to indulge in that. Is not this the reason why we don't prosper in our occupation? The world sees and recognizes this spirit, and the world pays a high premium for it. Not many of us are called upon to labor as does Mr. Moody, Rev. Sam Jones, or Rev. Sam Small. The world pays homage to them because they are laboring for Christ's sake; and the world will pay deference and homage to you, my friend, if you are working patiently and solely for Christ's sake, in *your* field of labor. Let me give you an illustration.

The greatest oatmeal establishment in the world was lately located in our neighboring town of Akron, but it has recently been burned down. The proprietor, Mr. Schumacher, has for many years had a standing litigation and expensive lawsuit with a Mr. Seiberling, the proprietor of one of the great reaper and mower works in Akron. Well, Mr. Seiberling had a strike among his hands. Seventy left in a body. He employed more to take their places, but the league to which the seventy belonged threatened any boarding-house that gave them lodgings, and for a time it seemed as if the difficulty of getting a boarding-house that would dare defy the league was of itself going to prevent Mr. Seiberling from filling their places and going on with his business. At this crisis Mr. Schumacher came forward, told his old and bitter enemy that a certain hotel which he owned was at his service. "Bring on your men, neighbor Seiberling; and if we haven't accommodations enough for all of them, we will make arrangements so they can have comfortable places to stay, that you may go on with your work."

Mr. Schumacher is a Christian, and did it for Christ's sake. No doubt he rejoiced in finding an opportunity of doing his old enemy a kindness, even though that enemy had persecuted and wronged him for many years. Perhaps some of you may think that friend Schumacher was carrying the matter too far; but let me tell you that such ways of doing have been prospered to such an extent that he was worth, before the fire, over a million of dollars, and the money has all been made by honest business in the town where he first settled down when he came from Germany, a poor boy, without friends, home, or money. Now, then, was not his course in helping his enemy a short cut compared with the *usual* way of doing business? I do not know that the two are now friends; but I feel pretty well satisfied that they are on friendly terms, and probably always will be, to the ends of their lives.

A great many times, when we have difficulty something must be said. Explanations must be made, and it is well to come to an understanding with your opponent; but, dear friends, I speak from experience when I tell you to beware how you talk *too much*. Let your words be few, and let them be for Christ's sake. Look out, or Satan will get in, even at the last moment, and upset it all. I have known many difficulties to be fairly settled, when a word too much raked it all up again, and the fires of passion waged stronger than ever. While I write these words I feel myself weak and frail, and I would say helpless, were it not for the "Rock that is higher than I." When we are working for his sake he has promised to befriend us; nay, more:

> And every one that hath forsaken houses, or brethren, or sisters, or father, or mother, or wife, or children, or lands, for my name's sake, shall receive a hundredfold, and shall inherit everlasting life.—MATT. 19: 29.

SWARMING, AND AMOUNT OF INCREASE.

HOW FRIEND FRANCE MANAGES WHEN SWARMING TIME COMES.

YOU ask how much increase we make. I will give you the number from our last two years' increase. Spring of 1884, 287 colonies; fall, 455; 168 increase. Spring of 1885, 320 colonies; fall, 510; 190 increase. So you see we don't nearly double the stock. We work for honey, and keep all as strong as we can, and keep them from swarming.

When they begin to work in the spring, if we have any weak colonies we strengthen them up from the strong ones by giving them brood—getting all *strong* before we make new colonies. There is no danger of swarms coming off until there is a good flow of honey; usually about the 10th of June the white clover will begin to give a little honey, and if the bees are all strong at that time, we begin to divide. Take two brood-combs from each strong colony, and put them into an empty hive; leave the queen in the old colony; give the old hive two empty combs, if we have them: if we have no spare combs, we give them empty frames to build combs in. Now take two brood-combs from another old colony, and put them with the first two in the empty hive; take two more combs of brood from another old colony and put with the four. We now have six brood-combs in our new colony; this will make a very good beginning. With each pair of combs taken from the old colonies, take from one to two quarts of bees. If in the morning, when the old bees are mostly at home, take two quarts; but if the bees are working as strong as they usually are in the middle of the day, one quart will do, as the bees you take then are young bees that have never been out of the hive, and they will stay where we put them. We now close up the new hive for a week or ten days, until we come again. I don't mean to confine the bees in the hive so they can not get out, but just shut up the hive, and leave the entrance open so the bees can work. We go over the whole apiary in the same way, taking from one to three combs, according to the strength of the old colonies, and making new colonies of six brood-combs and six or eight quarts of bees. In a week or ten days we are back again. Now we take our extractor with us, and extract all the honey we can get. Our old colonies should be just as strong as when here before, and have as many combs. They will build two empty frames full in a week. We again take two or three brood-combs and bees as before, and fill out the old colonies with frames or combs, if we have them. The combs and bees that we have taken out of the old colonies, we use; first fill out the young ones, started when here before, to 9 combs—that is, the full size of our hives. After they are all filled out, make more new colonies of six combs. This time we cut out all but one of the queen-cells from the new colonies started when here before, and insert into each new colony, started this time, one of the queen-cells taken from those started before. Some of those cells will be accepted and hatch; some will be destroyed, and those will have cells to use when we come again. In about a week we are back, and the programme will be about the same. Taking brood-combs from the old colonies keeps them from swarming, and we keep the new colonies strong, from the brood taken from the old ones. We usually go over all about five times; but the new colonies we make, the last two rounds, we make 9 combs, a strong full hive; then we are ready for a sudden stop. The main idea is just this: Keep just brood enough with the old queens so they won't swarm; keep all young colonies strong, by giving them a proper amount of brood, and allow them only one queen-cell, and they won't swarm. Extract about once a week, then the bees have enough to do without swarming. My experience with bees is, they swarm only when they are or have been crowded during a good flow of honey. We have no trouble about swarming; we use a large hive, extract once a week, increase moderately, keep all laying queens' wings clipped, then there is no loss if they do swarm, as they will go back again.

Platteville, Wis., March, 1886. E. FRANCE.

WANTED.

MORE MAPLE SUGAR.

READERS of GLEANINGS, you ought to have seen my eyes sparkle, and heard my heart go pit-a-pat this afternoon when I came across the maple-sugar advertisement in March No. of GLEANINGS, and for sale, too, by a man in whom I had the utmost confidence—one who would not sell me an impure article if he knew it. I wish I could have you all here under the sound of my voice, and could tell you all about my little visit up there two years ago, and do it justice; then you would understand why I write this. I shall always think Providence directed me there, and I expect the outgrowth of that little visit to be a benediction to me as long as I live. But, to return to my subject. I must have some of that maple sugar in the cake, to stimulate with; if it will do as well as syrup, it is so much more convenient. I wrote you, Mr. Editor, my fears concerning my bees. I had examined but one colony, and found a scarcity of honey, and judged all the rest by that one. Mar. 16, 17, 18, I took out every frame in every hive, and I know their true condition. To my great surprise I found plenty of stores to last for some time. Surely the dear Father heard and answered the petitions sent up from time to time, to "not let them starve." I did what I could for them. Number of colonies, was 47; 1 was dead, plenty of honey, the hive leaked, and they were wet; 4 were queenless; I united them with others; all the rest were in good condition, and raising brood. I clipped all the queens that were not clipped. I am now ready to stimulate "with a vengeance," when that maple sugar comes.

With your consent I will now have a little chat with sister Harrison. Sister, your article is just what I have been wishing for, for some time. As I am one of the young sisters (only four years old in the business, and fifty in years), I am bashful when in the company of my elder sisters; but as "overcome" is one of my mottoes, I will overcome my timidity, and make a suggestion to you, in answer to your first question to the editor—"What are we to do, who have not chaff hives, and are not able to procure them?" Appropriate part of the honey money for that purpose, or sell part of the bees and make the rest comfortable.

I will now give you a synopsis of my husband's manner of wintering bees. He first tried the cellar, then the parlor bedroom, then a south room up stairs, and finally a clothes-press 8 x 10. Those four years of apiculture will never be forgotten by me. It was heavy lifting, anxious care, and loss, until I was sorry the dear Lord ever made a honey-bee. Mr. Culp then made a chaff hive. I do not know whose invention. It so far excelled the other methods that he was satisfied, but, like your barrel method, they had to be lifted in, in the fall, and taken out in the spring, and that I found to be a nuisance. When I visited Bro. Root, and saw his chaff hive for the first time, I said, "There, *that* hive is complete," and I will not rest until mine is as near like it as it can be made. Next to Root's chaff hive, I have the best arrangement for wintering bees I have seen anywhere; and the success I have is all that need be said in its favor. I have lost only one colony each winter; and when I let a colony get wet, or starve, I do not blame the chaff or cut-straw hive with it.

I would say to beginners, adopt Root's chaff hive every time. I have visited not less than 20 apiaries within two years, and find no method of wintering equal to the chaff-hive arrangement. It is such a comfort, when thinking about your bees, to feel they are comfortable—not too warm in summer nor too cold in winter; and if they want a whiff of fresh air they can slip down to the entrance and help themselves. The very thought of confining, in a cellar or bee-house, away from the sunshine, any living creature, created to go at will, is repulsive to me.

Do you not, sister, take unnecessary trouble in fixing the top part of your hive? My method is simply to examine the brood-chamber by taking out every frame. If too much honey, take out some; if not enough, give some from surplus frames saved when extracting. Put on Hill's device, a new muslin sheet, two or three thicknesses of flannels, old pieces of carpet, or old vests, pants, or coats, on top of the flannel, then chaff cushions—no using hot iron, nailing, or wire cloth.

Do not insult your bees by putting on any of these old cast-off garments without first boiling them in good strong soapsuds; then re-boil them, and rinse until they smell sweet and look clean. The more you have of these the better.

I should like to hear from the other sisters who are making a specialty of bee culture, about their method of wintering. MRS. JENNIE CULP.

Hilliard, Ohio, Mar. 29, 1886.

My dear friend, I am sure you are giving me more credit than I deserve, and I felt almost as if I ought not to let such very kind words go into print; but on a second thought I think we will let them balance some others not so kind. When somebody intimates that I am not trying to be fair and honest, I will hunt up your kind letter, and one will balance the other, and then I will go on my way, trying still harder to live at peace with all men.—The results of this past winter make me feel again as you do—that I never want to try wintering bees again on any plan that necessitates lugging them about here and there. Perhaps it may be well to say right here, that our bees have come through this past winter with the loss of only about three colonies out of 200; and the surprising part of it to me is, they were all wintered on natural stores. Not a colony needed a pound of feed after we had doubled them up and utilized the full combs set aside purposely for wintering.

WILL COLD WEATHER KILL BEES?

FRIEND NIMAN GIVES US SOME FACTS IN REGARD TO THE MATTER.

IN the winter of 1858-'9 I purchased a colony of bees in a common box hive, with a honey-drawer in the top, of 30 lbs. capacity. This hive was all open at the lower end, suspended in the open air, about two feet from the ground. In the summer, combs were extended 10 or 12 inches below the hive. The following winter, by walking past, one could see the bees clustered any day below the mouth of the hive. The first of March, middle combs were filled with brood. In warm days this brood was exposed to view for hours.

That season it issued seven swarms (last one small), and made 30 lbs. of honey. This hive and bees remained in the same position for a number of years, and it did well.

In 1852 I put a colony in a hive made of ⅝-inch boards; these wintered well for 17 years on summer stands without any other protection. I now have a colony in a hive, and this winter will make the ninth it has stood the test. This hive is made of ¾-inch boards, no other protection. It has an open space on one side, ¾ of an inch wide from bottom, to within 3 or 4 inches of the top. The comb and bees can be seen from the outside, any day in the winter.

The winter of 1884-'5 was the hardest I ever knew here on bees. One of my neighbors had some ten or twelve colonies in common box hives, no protection, and the mouths of the hives all open; that is, they stood two or three inches from the bottom-boards; they came through safe, and did well last season, while all in the neighborhood that were tucked in so very close perished. JOHN W. NIMAN.

Spring Mill, Ohio, Mar. 8, 1886.

Friend N., we have had facts, such as you give, before us for years past; but for all that, and in spite of all that has been said and written on the subject, they have never been really satisfactory to my mind. Several times lately this subject has come up, of wintering bees with the bottom of the hive left off, or, at least, a large opening in the bottom-board. Now the question is, Do these cases simply show that a vigorous colony will oftentimes get through a severe winter in spite of such exposure, or do they do better with simply a warm shell above them, and the lower part of the cluster exposed to the outside air? Do you know this comes pretty near to the point we made a while ago, about wintering bees in an inverted large-mouthed bottle?

BEE-PASTURAGE.

SOME VALUABLE AND TIMELY HINTS UPON THE SUBJECT OF SOWING ALSIKE.

SEEING the subject of bee-pasturage sometimes mentioned, I thought I would describe the way I have managed to supplement the natural supply for my bees during the last five or six years. I first tried sweet clover with but poor success, so I took up alsike clover, and this is the way I work.

About this time of the year, I buy from 200 to 400 lbs. of best alsike clover seed in Montreal, at wholesale price. This year I can get it for 12 cts., perhaps less. I expect to buy my supply next week. It will cost me ½ ct. freight, and I shall probably sell it to the farmers who are *within two miles of my apiary*, for 10 cts. per lb. At this price it is readily taken up by all who are "seeding down" land suitable for alsike, as the price in the stores here is from 16 to 18 cts. Three pounds mixed with timothy will seed an acre very well, so you see I get pasturage which will last from two to five years, of the very best quality of honey, at the small cost of $7.50 for 100 acres. I can not conceive of any plan which, with me, would be cheaper, less trouble, or that would give as quick and reliable returns. I could get a good deal of seed sown by selling it at cost; but I find that taking off two or three cents per pound makes a great difference in the amount sown. As white and alsike clover are the most reliable honey-plants we have here—very rarely failing entirely—the results have been very marked and satisfactory.

To those who wish to try this plan I would say, Work up the matter personally; canvass every farmer within two miles and more in every direction from your apiary (those living more than two miles should pay cost of seed), showing them a sample of your seed, pointing out its advantages, etc. Although alsike clover hay will not weigh so heavy as red clover, it is far sweeter and better, and all stock far prefer it to eat. One pound of seed, also, will go as far as two pounds of red clover, as the seeds are so much smaller.

Canvassing the farmers should be done *at once*, as every good farmer plans his work and buys his seed early. After you have finished canvassing, add up your orders, send to a reliable seedman, distribute, and get pay for your seed, and your work for the season is done; but it should be repeated every season, to enlarge your "base of supply" as much as possible. Of course, you will have to wait one season before the alsike will bloom.

In localities where different apiaries are near together, if the seed is furnished under cost, the parties should make up the amount of the difference *pro rata*, according to the number of colonies they have.

A WORD OF CAUTION ABOUT SOWING ALSIKE.

First, get the *very best* seed you can find. Poor seed is an abomination. Don't sow it on dry, sandy land, for alsike delights in a moist soil. Try this plan, brother bee-keepers. I think you will be pleased with the results, especially if the alsike is sown on land at all suited to it.

This simple plan of increasing pasturage may not be new, but I never heard it mentioned, though doubtless some have tried it. GEO. O. GOODHUE.

Danville, Quebec, Canada, March 30, 1886.

Friend G., I believe that whenever you write for the bee-journals you always give us something good; but the above, it seems to me, is the best suggestion we have ever had in regard to artificial pasturage. I only regret that we didn't have it in time for an earlier issue.

REPORTS ENCOURAGING.

WINTERED FINELY.

MY bees wintered finely this winter, and are starting off well this spring, although the loss of bees throughout the country has been very heavy this winter. At least one-half of the bees have died. I have the Italian bees. They are the bees for this country, as they are much stronger than the blacks.

J. W. WILLHIDE.

Webster, W. Va., March 31, 1886.

CELLAR WINTERING.

I suppose reports of cellar wintering are in order now, so here goes: My bees (95 swarms) were put into the cellar about Dec. 1st, and taken out March 26th, with a loss of only 3 swarms, and the survivors are all in excellent condition except 2 swarms, which I find by my plat-board were late second swarms. The way my bees were arranged, and the cellar prepared for wintering, I did not feel the least bit worried or uneasy about them. I am now feeding them sugar syrup, with Gray's Simplicity feeders.

C. A. SAYRE.

Sargent, Floyd Co., Iowa, Apr. 5, 1886.

PROSPECT FOR A HONEY-YIELD GOOD; BEES BOILING OVER STRONG.

Bees are humming again. They have been on the wing two days, and the weather is all that can be asked for—just right for bees. The snow is all gone and the prospect for a honey-yield is good. I think the white clover is not winter-killed, for the snow has been on the ground all winter until now. My bees came to the front 68 strong, and boiling over at the entrance; they are bright and healthy, but I will not count my chickens before they are hatched. They may not be so strong in May. JOHN REY.

East Saginaw, Mich., Mar. 5, 1886.

FROM 43 TO 90, AND OVER 3000 LBS. OF HONEY, BESIDES 100 QUEENS REARED, IN THE HANDS OF A BEGINNER.

I started with 43 swarms last spring; 20 of them were in the Viallon hive, and 23 in the old box hive. I transferred late on account of not having hives. I have now 90 colonies, about 80 heavy and strong. I extracted over 3000 lbs. of honey and several hundred pounds of comb and section honey. Honey is slow sale here. I sell extracted at 8 cts., comb at 10 cts. I have 2 bbls. on hand now. In addition to this I reared over 100 queens. I have a good Italian stock now. I think this does very well for a beginner. My hopes are not blasted by any means. In doubling my nuclei I found one late queen, not fertilized. J. J. WALDRIP.

Staples Store, Texas. Feb. 1, 1886.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.
A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.
TERMS: $1.00 PER YEAR, POSTPAID.
For Clubbing Rates, See First Page of Reading Matter.
MEDINA, APR. 15, 1886.

Thou shalt see greater things than these.—JOHN 1:50.

A NEW DRESS.

THE *Canadian Bee Journal* now comes out dressed in a neat and tasty cover. It has just finished its first volume, and our Canadian friends are to be congratulated upon its success. We wish it all the prosperity it deserves, and that is a good deal.

ORDERING THINGS WE DO NOT ADVERTISE.

WE expect to keep in stock, ready to ship promptly, every thing we advertise in our catalogue; but where parties think proper to order of us things we do not advertise, we will do the best we can to supply their wants. But we can not be responsible for the quality or price of goods we procure for others simply as a matter of accommodation. We expect to do all we agree to do, but we can not always do what we do *not* agree to do.

THOSE BIG BARRELS.

IT is said that "figgers won't lie if you place 'em right;" and when our printers got the weight of a barrel of maple sugar 520 lbs., instead of 250 lbs., in our last issue, it showed the truth of the old maxim. After some of the last sheets were printed, we discovered that the size of the sheets of perforated zinc should have been given as 7 feet long, instead of 8, and that a whole sheet contains 16⅓ square feet, instead of 18⅔. We'll try to be more careful next time, if you will make a note of this.

A PASTEBOARD BOX, WITH A "WINDOW" IN IT, FOR HOLDING COMB HONEY.

MR. A. COX, of White Lick, Ind., sends us one of our ordinary pasteboard boxes, with a round piece of isinglass set in the front. A round hole is made through both label and box, with a suitable punch. The isinglass is then laid over the hole, and the label pasted on, holding it securely. Customers can then get a glimpse of the beautiful white comb, without opening the package. The isinglass is not easily broken, and in many localities slips suitable for the purpose could be had at a cost almost insignificant. The factories, too, where the boxes are made, ought not to charge more than a quarter of a cent each additional, to put in these little windows. I suppose the idea belongs to friend Cox.

ANOTHER SWARMING-BOX.

G. M. BISHOP, of Indianapolis, Ind., sends us a sketch of a swarming-box, made by placing a three-frame nucleus hive on the end of a pole. In front of the entrance of the hive is a broad alighting-board. This alighting-board is pushed up under the lower end of the swarm, with the hive attached. The bees leave the cluster and crawl into the hive. The whole is let down and taken where desired. The pole is made in three sections, so it can be used at different heights. No doubt this arrangement will work nicely. A frame of unsealed brood can be put in the little hive if desired.

THAT PERFORATING MACHINE.

OUR zinc-perforating machine has greatly exceeded our expectations; and while I sit here its great jaws cut out 68 holes at every stroke, or 7000 perforations every 5 minutes, so you can form some idea of its immense power. It is a self-feeder, and our machinists who made it have a pleased expression upon their faces as they watch the thing "chank," "chank," and roll out the sheets of perforated metal. The capacity of the machine is 12 whole sheets per hour, or at a safe calculation of 100 sheets per day—enough perforated zinc to make nearly a thousand tin-lined honey-boards. The very low rate at which we are offering this zinc ($1.50 per whole sheet, or 10 cents per sq. ft.) has started quite a run on it, and we hope we can supply our friends with all they want.

BUSINESS AT THIS DATE.

So far as we have been able to gather from letters received, bees have wintered unusually well; in fact, I do not remember of a season since GLEANINGS had an existence, when the reports were so uniformly favorable in regard to wintering as at the present date. As a consequence, our business is perhaps as thriving as it ever was before at this time of the year; and notwithstanding our loss by fire, by the aid of past years of experience and better machinery we are filling all orders quite promptly, with but few exceptions. Some delay was caused waiting for the machine that perforates the zinc, to be finished. Orders for odd-sized goods, those not mentioned in our catalogue, and which we do not keep for sale, have occasioned some delay.

"FOR CHRIST'S SAKE."

I WANT to add one thought here that was omitted in Our Homes. Many times in life we run on to wrongs that ought to be righted. The duty devolves upon us, and we can not escape it. The only question is, to decide how we can best do it for Christ's sake; and the point I wish to make is this: If the matter is something that is already nearly at an end, perhaps we had better permit it to go on. You may have difficulty with some one with whom you have deal: to right it may necessitate a lawsuit; but if your contract with him is nearly expired, bear with him, or put up with him for the time being for the sake of peace, or, if you choose, for Christ's sake. In the same way, many other things in life will right themselves if let alone, and, perhaps, cause less trouble and hard feeling to all parties concerned; so when you are about to disturb society, and stir up bad feeling, look the ground over carefully before you do any thing, and see if the matter will not right itself before very long, if just let alone. Bear quietly and uncomplainingly the wrongs you are suffering, for the sake of peace; and do not be in haste to bring trouble upon yourself and those about you. However, when duty *does* demand that you should bring iniquity to light, do it without flinching; but first be sure that Christ's cause will be furthered by so doing, and that the act is solely for *Christ's sake.*

A BARGAIN IN NICE COMB HONEY IN SECTIONS.

WE have just had a very pleasant visit from Mr. Gain R. Smith, of Victor, Ontario Co., N. Y. Mr. Smith says he has taken GLEANINGS right straight along since the time it was printed by wind-mill power, and he has been a bee-keeper all these years. Well, last year he produced a crop of eight or ten thousand pounds of beautiful comb honey. He sent it to the city of Pittsburg, to be sold; but as it did not go off to suit him he turned it over to his old friend Novice, who runs GLEANINGS. The honey is in neat pine cases holding 24 sections each. The sections weigh about 1½ lbs., glass and all, for every section has glass on each side of the honey, after the fashion friend Doolittle puts up his celebrated comb honey. The glasses are fastened in with tins, so they can be removed in a second. They are all filled and nicely sealed, and the sections have been nicely scraped off, so it is a handsome-looking lot; and in point of flavor it is equal to any white-clover honey I ever tasted. We offer it for sale at 14 cts. per lb. for the sections, with the two pieces of glass included; that is, 14 cts. per lb., glass and all. The sections are made of pine, so the woodwork is comparatively light. There are 171 cases in all, and the table below shows just the amount of money required for each case. It is so well packed that the entire lot came all the way from Pittsburg here without the breakage of a single crate or a single comb, and it will doubtless reach you in just as good condition. It can be shipped safely either by freight or express. If you wish, we can usually decide which manner will be the cheaper of the two.

NO. OF CASES.	LBS. PER CASE.	PRICE PER CASE.
2	33	$4.62
2	34	4.76
5	35	4.90
4	35½	4.97
8	36	5.04
6	36½	5.11
18	37	5.18
4	37½	5.25
9	38	5.32
4	38½	5.39
9	39	5.46
1	39½	5.53
31	40	5.60
3	40½	5.67
32	41	5.74
3	41½	5.81
24	42	5.88
6	42½	5.95
171		

For two or more cases we make a discount of 5 per cent; 10 or more, a discount of 10 per cent; 100, 15 per cent. The above honey is the cleanest and most perfect lot I think I ever saw. Each section is so perfectly sealed that not a bit of honey has dropped out or got daubed on the glass, and I do not believe there is a sticky section in the whole 7000 lbs.

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary, **SUPPLIES**

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd **Hartford, Washington Co., Wis.**

SECTIONS,

To nail, or dovetailed, per 1000, $4.50. Send 2-cent stamp for sample and price list. 4tfd
PARKER NEWTON, Earlville, Madison Co., N. Y.

BEE-HIVES, SECTIONS, COMB FOUNDATION,

AT GREAT REDUCTION.

DEALERS AND LARGE CONSUMERS WILL FIND IT TO THEIR INTEREST TO WRITE FOR PRICES FOR 1886.

JOHN J. HURLBERT,
LYNDON, WHITESIDE CO., ILLINOIS.
2tfd

Eggs, $1.25 PER 13, from pure-bred, single-comb Brown Leghorns. Unexcelled layers. Address H. B. GEER, Nashville, Tenn., or E. W. GEER, St. Mary's, Mo. 3-8db

BEES FOR SALE.—I will furnish full colonies of bees on good worker-comb, in good Langstroth hives, well painted, for $5.00 each, from April 15 to May 15, delivered on board the cars.
7-10db ALBERT POTTER, EUREKA, WINNEBAGO CO., WIS.

SECTIONS, $4.25 PER M.

7-12db **S. Y. ORR, Morning Sun, Iowa.**

ITALIAN AND SYRIAN QUEENS,

Before June 15, tested, $3.00 each; untested, $1.00 each. Later, tested, $2.00 each; untested, single queen, $1.00; six for $5.00; twelve or more, 75 cts. each. Untested queens warranted purely mated.
6tfdb I. R. GOOD, Nappanee, Elkhart Co., Ind.

FOR SALE. 30 COLONIES ITALIAN BEES in good condition, on 7 Langstroth frames, in shipping-boxes, $4.50, or shipped in Parker chaff hive, $6.50 per colony. Purchasers for the above can, if they prefer, send their cash to A. I. Root, Medina, O. WM. AMELANG,
7tfdb Ottumwa, Wapello Co., Iowa.

P. ROCKS! Choicest pure-bred stock. Eggs, $1.50 per 13. *(Ref. Ed. Gleanings).*
7tfdb YODER & METZLER, E. Lewistown, Mah. Co., O.

SURE TO SEND

FOR MY NEW

PRICE LIST FOR 1886,

Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb

A. B. HOWE, Council Bluffs, Ia.

CHAFF-HIVE APIARY AND FACTORY IN MISSOURI. PRICE LIST FREE.
JOHN C. STEWART,
7tfdb Hopkins, Nodaway Co., Missouri.

C. W. Phelps & Co's Foundation Factory.

SEE ADVERTISEMENT IN ANOTHER COLUMN.

DUNHAM AND VANDERVORT FOUNDATION

We have a large stock of choice yellow beeswax, and can furnish Dunham comb fdn. for brood comb, cut to any size, for 42c per lb. Extra thin Vandervort foundation, 48c per lb. We guarantee our fdn. to be made from pure beeswax, and not to sag. Will work up wax for 10c per lb., and 20c per lb. for section. **F. W. HOLMES,**
4tfdb Coopersville, Ottawa Co., Mich.

SECTIONS.

THE CHEAPEST YET.

One-Piece Grooved Sections, $3.00 per 1000.
Ten Thousand or more, $2.50 per 1000.

Address **CHAS. S. BEEBE,**
678d **Baltimore, Md.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

ALSIKE CLOVER SEED

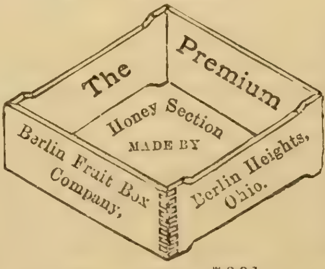
OF OUR OWN GROWTH, PURE AND CLEAN,

AT 13 CTS. PER POUND, BAG INCLUDED, in orders of 30 lbs. or more.
Send money orders on Fort Plain, N. Y. Address

WILL C. HALL,
7-8d **Hallsville, Montg'y Co., N. Y.**

FOR SALE.

The right to manufacture and sell the STANLEY AUTOMATIC REVERSING HONEY-EXTRACTOR for the States of Wisconsin, Illinois, Kentucky, Tennessee, Mississippi, Alabama, and all States and Territories west of the Mississippi River, except California. Will sell all or part of above-named territory. For prices, address
7-8d **J. E. STANLEY, Wichita, Kansas.**



To all who wish to use the best honey-sections, V-groove, and which fold without breakage, we say, *try ours.* Prices reasonable, and liberal discount on large orders. Send for prices of both apiarian supplies and fruit-boxes. Address as above.
7-8-9d

BEES IN IOWA. — SEE FOSTER'S — **ADVERTISEMENT.**

PEKIN DUCK EGGS, 10 for $1.00. } Sent by express.
PLYMOUTH-ROCK EGGS, 12 for 75c. }
7-10db C. L. DAVIDSON, FLEMINGTON, W. VA.

SAVE FREIGHT & MONEY by ordering your Apiarian Supplies from L. J. TRIPP,
7-8d Circular Free. KALAMAZOO, MICH.

Italian Queens, and 2-Frame Nuclei
A SPECIALTY.

My queens are reared from an imported mother, and in full colonies. Untested queen, in April, $1.25; in May, $1.00. Tested, in April, $2.50; in May, $2.00. Two-frame nuclei with untested queen, in light shipping-boxes (S. frs. wired), in April, $2.75; in May, $2.50; in June, $2.25. If larger nuclei are desired add 75c for each frame wanted. Send for my circular and price list free. Address

A. B. JOHNSON,
7tfdb CLARKTON, BLADEN CO., N. C.

FIRST IN THE FIELD!!

The Invertible Bee-Hive
Invertible Frames,
INVERTIBLE SURPLUS - CASES,
TOP, BOTTOM, AND
ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4-3db

WESTERN ILLINOIS MODEL POULTRY & BEE YARDS. Premium and imported stock; also Apiarian supplies. Catalogue free. 8-12d L. HORNING, Prop., Malvern, Ill.

ITALIAN QUEENS AND NUCLEI. Prices in February and March GLEANINGS.
7-10db ANNA M. BROOKS, Sorrento, Fla.

SCALE and MIRROR CARP for sale by the 100 or 1000. A fine lot of spawners now ready for shipment. 7tfdb W. L. McINTIRE, Mt. Vernon, O.

---

60 Colonies of Bees For Sale.

For particulars, call upon or address
7tfdb A. L. EDWARDS, Skaneateles, N. Y.

BEES IN IOWA. SEE FOSTER'S ADVERTISEMENT.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

LOOK * HERE.

What you can get for $3.00. A 3-frame nucleus on L. frames, containing two frames of brood, Italian queen, frames covered with bees; 75 Italian queens will be sent to fill first orders. Such nuclei as I send will not only grow into strong colonies, but will doubly pay all expenses with surplus honey. A great many customers have reported over $8.00 from each nucleus. If you want full colonies, or bees in any form *except* by the pound, write me before ordering elsewhere. Orders will be filled from the 25th of May to June 15. 5-8db

DAN WHITE, New London, Huron Co., O.

FOR SALE. ITALIAN AND CYPRIAN BEES and Queens (in any quantity). Extractors, Bee-Books, etc. Address 6tfdb
OTTO KLEINOW, Apiarist, DETROIT, MICH. (Opp. Ft. Wayne Gate.)

VANDERVORT
COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

FOR SALE CHEAP.

Having bought an interest in A. F. Stauffer's supply establishment, to which I will devote my entire time, I will sell my apiary of

50 Colonies of Hybrid Bees, Cheap.

For further particulars, address
7-9db **J. G. SEIDEL, Sterling, Illinois.**

WANTED.

Names of parties wanting first-class dovetailed honey-sections, to whom samples will be sent on receipt of address. Also crates in season. A perfect iron section - box former sent for $1.00, and satisfaction guaranteed. **Geo. R. Lyon,**
4-9db GREENE, CHENANGO CO., N. Y.

Pure Italians WITH TESTED QUEENS. I can dispose of a few colonies at fair prices. As to quality of bees, and personal character, I refer to J. E. Pond, Jr., Foxboro, Mass.
7-8d SAM'L COOMBS, FOXBORO, MASS.

FOR SALE.—40 colonies of my improved strain of pure Italian bees in two-story chaff hives, @ $7.00; in single-walled hives, 1½ story @ $6.50; 50 two-story chaff hives, including frames and crates, @ $1.50; 50 single-walled hives, frames and crate, @ .90. Hives have tin roof. 1 honey-ext. for L. frame, $3.00. A wax-ext., $1.00. Must be sold immediately. 7tfdb

GEO. F. WILLIAMS, NEW PHILADELPHIA, O.

Y&.. WYANDOTTE FOWLS, ITALIAN BEES, QUEENS, and SUPPLIES. Send for Price List. **BB**
W. H. OSBORNE, CHARDON, OHIO.
5-11db

NOTICE THE LOW PRICES ON

Bees, Brood, Queens, Plants, Etc.,

IN MY NEW CIRCULAR. PLEASE WRITE FOR ONE.

C. WECKESSER,
5-10db **Marshallville, Wayne Co., Ohio.**

SEND FOR FREE SAMPLES OF **FOUNDATION**
TO C. W. PHELPS & CO., TIOGA CENTRE, N. Y.

1886 NORTHSHADE APIARY. 1886

PRICES GREATLY REDUCED.

Full colonies of Italian bees for spring delivery. Nuclei, queens, and bees by the pound for the season. Comb foundation for sale. Wax worked by the pound or for a share. Fdn. samples free. Price list ready. **O. H. TOWNSEND,**
6tfdb **Alamo, Kal. Co., Mich.**

BEES, Full Colonies, Hybrids and Italians, for sale, in Simplicity and Adair hives. I guarantee safe arrival by express. My bees have wintered as well as usual on the summer stands. Write how many you want, and for prices. H. M. MOYER,
7-9db Hill Church, Berks Co., Pa.

FOR SALE.—**25 Colonies** of bees in S. hives, nucleus colonies in shipping-boxes, tested and untested Italian queens. 7 8d.
N. ADAMS, Sorrento, Orange Co., Fla.

Eggs for hatching I have got,
From Pekin ducks and Wyandottes;
If you will send me dollars two,
Thirteen fresh eggs I'll send to you.
"Rabbits as usual." A. A. FRADENBURG,
7-8d Port Washington, O.

---

125 STOCKS OF BEES FOR SALE.

Mostly Italians. These bees must be sold, and will be sold cheap. All in Quinby frames. Sold with or without hives. Send for prices of Italians, hybrids, and blacks. Address
WM. E. CLARK,
7-10db Oriskany, Oneida Co., N. Y.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, Germantown, Philadelphia, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

MY 13TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
8d *H. H. BROWN, Light Street, Col. Co., Pa.*

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db
A. F. STAUFFER & CO., Sterling, Ills.

CONTRACTS WANTED
—WITH—
SUPPLY DEALERS
FOR NEXT SEASON'S STOCK OF GOODS.

CHAFF, STORY AND HALF CHAFF, AND SIMPLICITY HIVES, SMOKERS, EXTRACTORS, COMB FOUNDATION, FRAMES, SECTIONS, BOOKS, ETC.,

At wholesale and retail. Unexcelled facilities. Circulars and estimates free. Successors to S. C. & J. P. Watts. Sta. Kerrmore, B. C. C., & S. W. R. R.

WATTS BROS., Murray, Clearfield Co., Pa.
1tfdb.

WANTED.—To exchange. I have a complete printing-office, consisting of 20 fonts of general job type, nearly new, some never used; 18 lbs. brevier, for circular work, all in job cases and cabinet; one Cottage hand cylinder-press, 6x10 chase, one Novelty press, 10x14 chase; composing-stick, rules, leads, etc. Cost over $200. I will take fdn., sections, cash, or other goods. Make an offer.
6tfdb E. KRETCHMER, Coburg, Iowa.

EXPRESS PREPAID upon EGGS FOR HATCHING from our premium stock of Fowls. Send for price list. Satisfaction guaranteed.
8d BOSTWICK & ASHLEY, Medina, Ohio.

QUEENS. 1886. QUEENS.

Reared from Imported Mothers. Two, three, and four frame nuclei. Safe arrival and satisfaction guaranteed. Send for price list. Address
5-11db FRANK A. EATON, BLUFFTON, OHIO.

SOLD

Having sold the 100 colonies of **Bees** offered in the March Nos. of this journal, I am now booking orders only for

NUCLEUS COLONIES AND QUEENS. ALSO BEE-KEEPERS' SUPPLIES.

Send for 1886 price list. Address
7tfdb WM. W. CARY,
Successor to Wm. W. Cary & Son. COLERAINE, MASS.

$350. ATTENTION. $350.
APIARY FOR SALE.

50 swarms of splendid bees in 2-story Langstroth hives, *comb-honey outfit complete*, in location where bees never freeze or starve. Will pay for themselves the first year. Combs all built on fdn., and wired. A splendid chance for a live man to gain a livelihood in sunny California. Reason for selling, *must have money*. Address 678d
DAVIS BROS., Box 166., Selma, Cal.

Reference, Judge Fowler, Selma, Cal. This is an irrigated district, and a complete failure is unknown. This climate is splendid for those suffering with lung complaints. Inclose stamp. Also a small farm for sale.

1886 Golden Italian Queens. 1886

Our bees won first prize at the St. Louis Fair over several worthy competitors in Oct., 1885.

Extra tested queens, 2 years old	$3 50
" "	2 00
Untested, " after May 15	1 00

We will also dispose of 50 full colonies at the following low price, in one-story Simplicity hives:

One colony, with tested queen	$8 00
" " " untested queen	6 50

Five or more, 10 per cent discount.

Delivered at R. R. station, and safe arrival guaranteed. Send for circular.

DARROW & ROSS,
8-10db **Lebanon, St. Clair Co., Ill.**

---

20 Colonies of Bees For Sale.

I will sell twenty colonies of bees in the A. I. Root two-story chaff hive, combs straight, on wired frames, with metallic corners, all in good condition. Hives are as good as new, and well painted, for $10.00 per colony. Address J. REYNOLDS,
8-9d Clinton, Kennebec Co., Maine.

BANTAMS, all varieties; WYANDOTTES, POLISH, SUMATRAS, SILKIES, PHEASANTS, DUCKS. **B. Perry**, **WOODBURY, N. J.** finest quality. FREE CIRCULAR. 8d

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PURE ITALIANS.	May	June 1 to 18	June 21 to Oct. 1
Tested queens	$2 50	$2 25	$1 75
Untested queens		1 25	1 00
Bees per pound	2 00	1 50	1 00
Nuclei per comb	90	65	50

All communications promptly responded to, and all questions cheerfully answered.
7-13db **S. C. PERRY**, PORTLAND, IONIA CO., MICH.

ITALIAN BEES FOR SALE.

1 colony, $7.00; 5 colonies, $6.50, L. hive. Bees by the lb. or nucleus, and queens the last of June.
8-10d L. T. HOPKINS, Conway, Franklin Co., Mass.

SECTIONS

AT HARD-PAN PRICES. V-groove or square cut. Samples free; also chaff hives, Root's pattern; Dunham comb-foundation and apiarian supplies of all kinds. Write, stating what you want, and I will quote you rock-bottom prices. Circular free. 8d
EZRA BAER, Dixon, Lee Co., Illinois.

JOB LOT OF WIRE CLOTH

AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1½ CTS. PER SQUARE FT.

Inches Wide.	No. of Rolls.	SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED. This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and cages for shipping bees; making sieves for sifting seeds, etc. Number of Square Feet contained in each Roll Respectively.
24	1	1 roll of 180 s. f.
26	71	22 rolls of 217, 38 of 216, 1 of 195, 2 of 215, 1 of 210 s. f.
28	11	9 rolls of 233, and 2 of 234, s. f.
34	7	5 rolls of 281 s. f.
38	37	27 rolls of 316, 2 of 285, 2 of 317, 1 each of 632, and 215 s. f.
42	1	1 roll of 245 s. f.
44	2	1 roll of 366, 1 of 348 s. f.
46	1	1 roll of 152 s. f.
48	4	4 rolls of 400 s. f.

FIRST QUALITY WIRE CLOTH AT 1¾ CTS. PER SQUARE FT.

The following is first quality, and is worth 1¾ cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1¾ cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

Inches Wide.	
22	1 roll 143 s. f.
24	43 rolls of 200 sq. ft. each; 1 each of 120, 168, 190, 140, 150, 140 sq. ft.
26	57 rolls of 216 sq. ft. each; 1 each of 199, 195, 201, 200, 227, 204 sq. ft.
28	73 rolls of 233, 11 of 224, 8 of 222, sq. ft.; 1 each of 257, 219 sq. ft.
30	36 rolls of 250 sq. ft.; 1 each of 235, 275, 240, 220, 227, 237, sq. ft.
32	13 of 266, 7 of 256, 2 of 253 sq. ft.; 1 each of 250, 275 sq. ft.
34	30 rolls of 283 sq. ft. each.
36	22 rolls of 300 sq. ft. each; 1 each of 288, 279, and 285 square ft.
38	1 roll each of 300 and 316 sq. ft.
40	1 roll of 233 square feet.
42	1 roll of 350 square feet.
46	1 roll of 192 square feet.

A. I. ROOT, Medina, Ohio.

JOB LOT OF POULTRY-NETTING,

In. wide.	At 1 ct. per sq. foot; 5 per cent off for two or more pieces; 10 per cent off for 10 or more pieces; 1½ cts. per sq. ft. when we have to cut it. Besides this job lot we keep in stock the regular 4-foot poultry-netting, in rolls of 150 lineal feet at same price as above. These figures give the number of sq. feet for each roll; and by dividing by the number of feet wide you can determine the length of each piece.
30	1 piece each of 15, 25, 30, 37, 65, 110, 180, 194, 258, and 265 sq. ft.
36	1 " " " 18, 18, 33, 33, 36, 39, 63, 69, 69, 84, 87, 180, 258 375, 387, 390, and 414 sq. ft.
42	1 piece each of 21, 182, 200, 210, 350, and 350 sq. ft.
60	1 piece each of 125, and 180 sq. ft.
72	1 " " " 24, 36, 42, 54, 54, 60, 66, 72, 72, 72, 138, 150, 186, 300, 450, and 552 sq. ft.

We know of nothing nicer or better for a trellis for creeping vines, than the above netting. The 6-ft. pieces are just the thing for morning-glories, and the 36-in. for sweet peas. We tried some last summer, and can speak from experience.

A. I. ROOT, MEDINA, OHIO.

Italian Queens sent by Mail.

Untested queens from imported mother, April, $1.25; May, June, and July, $1.00. After April, per half-dozen, $5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

FOR SALE. 25 COLONIES OF HYBRID BEES in 8-frame Simplicity hives; frames mostly all wired. Will take $5.00 per colony if ordered now. Will deliver at express office May 1st. Address A. B. JOHNSON,
7tfdb Clarkton, Bladen Co., N. C.

10c.
ROYAL
GLUE
MENDS
EVERY THING

ROYAL ✻ GLUE.

Mends Everything.

This is the best cement we have ever tried. Almost any article mended with it will break anywhere else before the place mended. It holds honey labels on tin, etc. Ten cents per bottle; ten bottles, 90c; 100 bottles, $8.00.

A. I. ROOT, Medina, O.

FOR SALE.

One second-hand fdn. mill that will roll sheets 14 inches wide. The mill is at present in New Hamburg, Ont., Can. The original price on it was $40.00, but we will now sell it at half price, or $20.00.

Also one exactly like it, owned by W. W. Bliss, of Duarte, Los Angeles Co., Cal. There is nothing wrong with these mills, except that the rolls are of smaller diameter than those we now make, in consequence of which they do not make quite so thin fdn. right in the middle of the rolls as those made now with rolls of a larger diameter. They will, however, roll narrow sheets equal to any, and will roll sheets a foot wide; but when of so great a width, the center is a trifle thicker, as explained above.

Also one 9-inch Dunham mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $20.00. The list price of a new mill of this kind is $40.00.

Also two 10-inch mills of our own make, that were taken from parties who were wanting mills of longer rolls. These have been finished, and we pronounce them in every respect almost as good as new. Price $15.00 each.

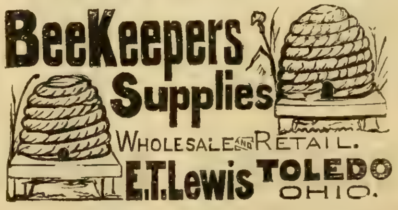
Also one 10-inch mill, Olm make, fixed over so as to do about as good work as it ever did. Price $12.00. **A. I. ROOT, Medina, O.**

A NICE LOT OF **GOLDFISH** now ready for sale. Order from W. L. McINTIRE,
7 8 9 Mt. Vernon, Ohio.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**



Orders filled the day they are received, except for bees and queens. 4tfdb

8 COLONIES HYBRID BEES FOR SALE, in 10-frame Langstroth hives, at $4.75 per colony, taken at apiary.
8 HENRY A. HEIST, East Germantown, Wayne Co., Indiana.

WHITE-CEDAR TREES.

Now is the time to order. Ornamental and useful for dooryards and windbreaks, cheaper than ever.
2 doz. trees, 1 ft. high, $1.00; 4½ dozen $2 00
2 " " 2 " " 2.00; F. O. B.
8-9d P. J. HAAG & CO., Scott, Wis.

ITALIAN BEES, full colonies, by the lb., and queens. Also pure-bred poultry. For price list, address
8d F. S. McCLELLAND, Box 379, New Brighton, Beaver Co., Pa.

KENWARD-HALL APIARY.

Thanking our friends for their large orders, March and April, we assure them that we shall try to merit all orders in the future. 200 nuclei. Our queens imported by ourselves. Price $1.00; ½ doz., $5.00; 1 doz., $10.00. Tested, $2.00 and $3.00. Special rates to dealers.

J. W. K. SHAW & CO.,
8-10db **Loreauville, Iberia Parish, La.**

Wanted. Situation as assistant apiarist. Student of D. A. Jones. Address
8d W. E. MORRISON, Alvinston, Ont., Canada.

SUPPLIES!

HIVES, SECTIONS, CASES, CRATES, ETC. COMB FOUNDATION, ITALIAN BEES AND QUEENS, BRED FOR HONEY-GATHERING.

Wax wanted. Send for free Catalogue to

6tfd REYNOLDS BROS., WILLIAMSBURG, WAYNE CO., IND.

WHOLESALE AND —RETAIL.— **FOUNDATION.**

Warranted good as any made at the following prices:

All-in-one-piece V-groove Sections, $4.00 per 1000; for larger lots write for prices. Wax worked very cheap. Send for price list of other Supplies.

1 to 25 lbs. per lb.	42c.
25 " 50 " " "	40c.
50 " 100 " " "	39c.
100 " 500 " " "	38c.

Thin, 6 cts. per lb. extra.

M. H. HUNT,

6tfdb Near Detroit. BELL BRANCH, WAYNE CO., MICH.

DON'T READ THIS

UNLESS YOU WANT TO BUY BEES

AT ÷ REDUCED ÷ PRICES. ÷ Address

CHARLIE W. BRADISH,

7-8d **Greig, Lewis Co., N. Y.**

THE

Apicultural Establishment

OF

F. J. DOKOUPIL,

In Vigaun, Upper Carniola,
Austria, Europe,

Send QUEENS postpaid. Safe arrival and purity of breed guaranteed.

Price each in German Reichsmark.

	Apr.	May.	Jun.	Jul.	Aug	Sep	Oct
Carniolan Queens, Native,	8	7	6	5	5	4	4
Italian Queens, Native,	9	9	8	7	7	6	6
Cyprian or Syrian Queens, Native,	20	20	20	20	18	18	18
Cyprian or Syrian Queens, bred in Carniola,	12	12	11	11	10	10	10

579db

ITALIAN BEES IN IOWA.

60 c. to $1.00 per lb. Queens, 30 c. to $2.50. Order from new circular, sent free. 6tfdb

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

APIARIAN ❋ SUPPLIES

OF ALL KINDS MANUFACTURED BY

E. L. WESTCOTT, Fairhaven, Rutland Co., Vermont.

Having fitted up with new machinery designed and built expressly for this work, my facilities are unsurpassed for doing FINE AND ACCURATE WORKMANSHIP. For full particulars and LOW PRICES send for my ILLUSTRATED CATALOGUE and sample of the celebrated poplar sections.

ALSO HEADQUARTERS FOR

PURE BRED

ITALIAN AND ALBINO QUEENS.

Untested, June 1st to 15th, $1 10; after	$1 00
" after June 15th, per half-dozen	5 00
Tested, progeny three-banded and prolific	2 00
" selected, young, large, and light-colored	3 00
Full colonies, April or May, in Langstroth or Simplicity hives, with tested queens, $8 00; after	7 00
Nucleus colonies, June and July, two-frame L. or Sim. frame, ½ lb. of bees, brood, etc. (add the price of queen, if wanted)	2 00
Pure Italian bees, per pound, in June, $1 50; July and August	1 00

8tfd

PURE ✧ ITALIANS ✧ EXCLUSIVELY.

STOP, ❋ READ, ❋ AND ❋ ORDER.

Having determined to devote my time and attention exclusively to the production of pure Italian bees and queens, during the season of 1886, I offer, in order to reduce stock, **50 Choice Colonies of Pure Italians** in 10 Langstroth frames, guaranteed to contain at least 4 full frames of brood and 4 lbs. of bees in new chaff hive, at $10.00 each. I append my prices for the season.

My terms are cash with the order. First orders will be filled first. I will refund money at any time a customer may become dissatisfied with waiting.

My methods: One kind, and the best of that kind. Nothing except tested queens sold at any price. I will send one-year-old queens until stock is exhausted, and then this season's hatch. I will commence to send, about May 1st.

1 tested queen	$1 00
1 pound of bees	1 00
1 frame of brood and bees	1 00

1-frame nucleus, tested queen	$2 00
2 " " " "	3 00
3 " " " "	4 00
4 " " " "	5 00

In lots of 5, five per cent discount; in lots of 10, ten per cent discount. In lots of 10 or more nuclei or pounds of bees, I will pay express charges for the first 1000 miles. Now remember, I guarantee safe arrival and absolute satisfaction in all cases. Sample of live workers free by mail. Capacity, 25 queens per day after May 1st.

THOMAS HORN,

6tfdb BOX 691, SHERBURNE, CHENANGO CO., N. Y.

1000 Lbs.

BEES FOR SALE.

Here I am for the spring of 1886, with 1000 LBS. OF HYBRID BEES for sale by the pound. Bees $1.00, and queens 50 cts. in May; bees $1.00 and queens 35 cts., after the 10th of June. All express charges paid by me in the United States and Canada. Safe arrival guaranteed. Orders received first will be filled first. Remember, I can not fill all in one day. Order early, and avoid delay. No order will be booked without the money. Money returned when required. I have no circular. Inclose stamp when you want a reply. I will start to ship on the 15th of May, weather permitting.

THOMAS GEDYE,
8-12db **La Salle, La Salle Co., Ill.**

JOB LOT OF WIRE CLOTH

AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1½ CTS. PER SQUARE FT.

SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED.

This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and cages for shipping bees; making sieves for sifting seeds, etc.

Inches Wide.	No. of Rolls.	Number of Square Feet contained in each Roll Respectively.
24	1	1 roll of 180 s. f.
26	71	22 rolls of 217, 38 of 216, 1 of 195, 2 of 215, 1 of 210 s. f.
28	11	5 rolls of 233, and 2 of 234, s. f.
34	7	4 rolls of 281 s. f.
38	37	26 rolls of 316, 1 of 285, 2 of 317, 1 each of 632, and 215 s. f.
42	1	1 roll of 245 s. f.
44	2	1 roll of 366, 1 of 348 s. f.
48	2	2 rolls of 400 s. f

FIRST QUALITY WIRE CLOTH AT 1¾ CTS. PER SQUARE FT.

The following is first quality, and is worth 1¾ cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1¾ cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

Inches Wide.	
22	1 roll 143 s. f.
24	42 rolls of 200 sq. ft. each; 1 each of 120, 168, 190 110, 150, 140 sq. ft.
26	56 rolls of 216 sq. ft. each; 1 each of 190, 195, 201, 200, 227, 204 sq. ft.
28	72 rolls of 233, 11 of 224, 8 of 222, sq. ft.; 1 each of 257, 219 sq. ft.
30	36 rolls of 250 sq. ft ; 1 each of 23[illegible], [illegible]75, 240, 220, 227, 237, sq ft.
32	13 of 266, 7 of 256, 2 of 253 sq. ft.; 1 each of 250, 275 sq. ft.
34	30 rolls of 283 sq. ft. each.
36	22 rolls of 300 sq. ft. each; 1 each of 288, 279, and 285 square ft.
38	1 roll each of 300 and 316 sq. ft.
40	1 roll of 233 square feet.
42	1 roll of 350 square feet.
46	1 roll of 192 square feet.

A. I. ROOT, Medina, Ohio.

JOB LOT OF POULTRY-NETTING,

At 1 ct. per sq. foot; 5 per cent off for two or more pieces; 10 per cent off for 10 or more pieces; 1½ cts. per sq. ft. when we have to cut it. Besides this job lot we keep in stock the regular 4-foot poultry-netting, in rolls of 150 lineal feet at same price as above. These figures give the number of sq. feet for each roll; and by dividing by the number of feet wide you can determine the length of each piece.

In. wide.	
30	1 piece each of 15, 25, 30, 180, and 194 sq. ft.
36	1 " " " 63, 258, 375, 387, 390, and 414 sq. ft.
72	1 " " " 24, 36, 42, 54, 54, 60, 66, 72, 72, 150, 186, and 300 sq. ft.

We know of nothing nicer or better for a trellis for creeping vines, than the above netting. The 6-ft. pieces are just the thing for morning-glories, and the 36-in. for sweet peas. We tried some last summer, and can speak from experience.

A. I. ROOT, MEDINA, OHIO.

WHITE - CEDAR TREES.

Now is the time to order. Ornamental and useful for dooryards and windbreaks, cheaper than ever.
2 doz. trees, 1 ft. high, $1.00; 4½ dozen $2 00
2 " " 2 " " 2.00; F. O. B.
8-9d P. J. HAAG & CO., Scott, Wis.

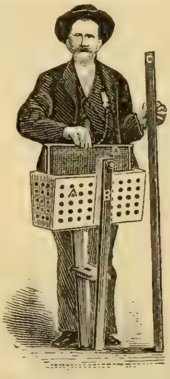
1884. Tar-Heel Apiaries. 1886.

4— 71—70

ABBOTT L. SWINSON,
PROPRIETOR,
GOLDSBORO, Wayne Co., N. Ca.

Importer, breeder, and dealer in the finest bees in America. All cells built in *full colonies.* No queens reared in less than 3 L. frame nuclei. Satisfaction, or money refunded. American Albino Italians (the finest and best bees I have, from home-bred mothers; a well-acclimated strain of Italians, and perfect beauties); Syrians and Carniolans of first grade. Imported mothers from F. Benton. Untested queens, *warranted purely mated.* May, $1.00 each; June to Oct., $1.00 each; 6 for $5.00. Fine tested queens, May, $2.50; June to Oct., $2.00 each. Nuclei, 75 cts. each, L. frame, bees and brood; bees by pound sent only in nucleus of one frame, brood and honey, each, for $1.00 a pound, price of brood to be added. I guarantee safe arrival. Foundation 45 and 55 cts. (*clean and pure*), per pound.

Choice breeding queens, of my American Albinos, $5.00 each. Send 10 cts. for sample workers, and be convinced. Rev. Lewis Werner, Edwardsville, Ills., April 4th, says: "The *American Albinos* are the *finest* I ever *saw.*" Friend Chas. F. Muth says: "They are well worthy to be bred." I make a *specialty* of *fine American Albino* Queens and *Nuclei.* 9d



KALER'S Swarming - Box.

No more CUTTING LIMBS! No more ABSCONDING SWARMS! No more CLUSTERING of TWO swarms TOGETHER! No more HARD WORK to HIVE SWARMS! EASILY done, QUICKLY done, and WELL done with KALER'S SWARMING - BOX! Made of GOOD MATERIAL! READY for USE, at $1.00 each.

Made to SUIT ANY SIZE of FRAME, by

W. S. KALER,
Andersonville, Indiana.

Send postal for description. In ordering Box, give name of hive and size of frame used.

DUNHAM AND VANDERVORT FOUNDATION

We have a large stock of choice yellow beeswax, and can furnish Dunham comb fdn. for brood comb, cut to any size, for 40c per lb. Extra thin Vandervort foundation, 46c per lb. We guarantee our fdn. to be made from pure beeswax, and not to sag. Will work up wax for 10c per lb., and 20c per lb. for section.

4tfdb **F. W. HOLMES,**
Coopersville, Ottawa Co., Mich.

E. B. P. EGGS, BEES, & POTATOES.

If you want Eggs from the best **Pure - bred Poultry, Italian Bees or Queens, Mammoth Pearl Potatoes,** or any thing else that we offer, please send us your order. See ad. on page 245. Send for circular, and mention GLEANINGS.

J. C. BOWMAN & CO., North Lima, O.

BEES IN MISSOURI, J. C. STEWART, HOPKINS, MO.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

KENWARD-HALL APIARY.

Thanking our friends for their large orders, March and April, we assure them that we shall try to merit all orders in the future. 200 nuclei. Our queens imported by ourselves. Price $1.00; ½ doz., $5.00; 1 doz., $10.00. Tested, $2.00 and $3.00. Special rates to dealers.

J. W. K. SHAW & CO.,
8-10db **Loreauville, Iberia Parish, La.**

QUEENS

Ready after May 15. Send for price list.
J. C. MISHLER,
9-11d **Ligonier, Ind.**

STRAWBERRIES. Send as many cents to C. Weckesser, Marshallville, O., as you wish plants, and see what a fine collection he will send you. Name the varieties you have and prefer. Stamps taken. 9d

LOOK HERE.

Untested queens, only 75 cents each. 6, 70 cents each; 10, 60 cents each. **M. S. ROOP,**
9d **Council Bluffs, Iowa.**

DO YOU EAT CANDY?

Send $1.25, and I will express 5 lbs. of Todd's Honey Candies, same as made a sensation at last Pennsylvania State Fair. Remember, every pound sold helps the honey-trade. Special rates for quantities for fairs. Dadant Foundation always in stock at market prices. Bees, Queens, Hives, Smokers. Vol. I of Frank Cheshire's new book mailed free, $2.50.
914db ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.

ITALIAN QUEENS

From pure mothers. One untested, $1.00; ½ dozen, $4.50; per dozen, $8.00. G. W. BECKHAM,
9d Pleasant Hill, Lancaster Co., S. C.

BOOK FREE. Our catalogue for 1886 contains 45 pages; 31 are devoted to bee-keeping. It treats the different operations clearly and practically. It is just what the beginner needs. Tells how to use the various implements, and embraces the following subjects: Who should Keep Bees? Location of Apiary; Handling Bees; Hives; Implements; Robbing; Italianizing; Swarming; Surplus Honey; Feeding; Diseases and Enemies of Bees; Wintering Bees; Marketing Honey; and a complete list of supplies. This book will be sent free to any address by WATTS BROS.,
9tfdb Murray, Clearfield Co., Pa.

Introducing Queens.

Henry Alley has given, in the May number of the AMERICAN APICULTURIST, several new methods for introducing both fertile and unfertile queens. Sample copies free. Address

AMERICAN APICULTURIST,
9tfdb **Wenham, Mass.**

ITALIAN & CARNIOLAN QUEENS.

Bred in separate apiaries, away from other bees. Warranted Italian or untested Carniolan queens, in May, $1.25; 6, $6.75; June, $1.10; 6, $5.90; July, $1; 6, $5. State which you prefer, Italians bred from my *Bellinzona strain*, or *Golden Italians*. I am prepared to please all.

BEES AT REDUCED RATES.

For full particulars, and prices of tested queens, bees, etc., send for circular and price list. Satisfaction guaranteed. **CHAS. D. DUVALL,**
9tfdb **Spencerville, Mont. Co., Md.**

GOOD NEWS FOR DIXIE!

SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

Hard-Time Prices in May.

Two-frame nuclei of Italian bees, with tested Italian queen, $2.50; 3-frame, ditto, $3.00. Full colony, in A. I. Root's Simplicity hive, $6.00. All on wired L. frames. Pedigreed Poland China pigs for sale. Single pig, 10 weeks old, $8.00. Per pair, not akin, $15.00. Per trio, $22.00. Safe arrival guaranteed. I shall do by all as I would be done by.
Address **N. A. KNAPP,**
9d ROCHESTER, LORAIN CO., OHIO.

FOR SALE.—100 colonies of Italian bees, and 200 tested and untested queens.
9-12db E. BURKE, Vincennes, Ind.

RUBBER CEMENT, FOR MENDING RUBBER BOOTS, RUBBER SHOES, and all kinds of rubber goods. An article worth its weight in gold, for the saving of health, annoyance, and trouble. Printed directions for use accompany each bottle. Ten cents per bottle; ten bottles, 85c; 100, $8.00. Not mailable.
A. I. ROOT, MEDINA, OHIO.

ITALIAN QUEENS IN TEXAS.

Reared from Root's best imported untested queen, $1.00. Selected, and tested, $2.00, $2 50. Sent by mail. AD. MEYER,
9tfdb Sweethome, Lavaca Co., Texas.

50 STRONG COLONIES BEES

FOR SALE CHEAP.

F. L. WRIGHT, 9-10d **Plainfield, Mich.**

SEND FOR FREE SAMPLES OF FOUNDATION

TO C. W. PHELPS & CO., TIOGA CENTER, N. Y.

FOUR-PIECE ONE-POUND

DOVETAILED SECTIONS,

$2.25 PER 1000. SAMPLE FREE.

M. A. LOHR, VERMONTVILLE, EATON CO., MICH.

Recent Additions to the Counter Store.

FIVE-CENT COUNTER.

1 | MARKET-BASKETS. These are much better made than those we have been selling heretofore, and they are packed for shipment, 10 in a nest, with the handles loose. By this means they will go at a much lower rate of freight than formerly. We are enabled to make the prices by the tens and hundreds as follows: ⅛ bushel, 10, 35 cts.; 100, $3.00. ¼ bushel, 10, 38 cts.; 100, $3 25. ½ bushel, 10, 40 cts.; 100, $3.50. At the above prices, double-pointed tacks are included, for tacking the handles. We can send samples by mail where desired, at a cost of 8 cts. for the ⅛ bushel, or 10 cts. for the ¼ bushel. We hardly need mention the thousand and one uses for a light, pretty, and stout market-basket.

FIFTEEN-CENT COUNTER.

6 | BENCH-VISE. . . . . | 1 40 | 13 50

This, though, small, is a little beauty, and wonderfully handy for any one who likes to fix things up. The jaws are one inch wide and the vise is 3 inches long.

TWENTY-FIVE CENT COUNTER.

6 | CARPENTER'S BEVEL, or try square... | 2 00 | 18 00

Can be set at any bevel. Finished with rosewood handle, blade 8 inches long.

THIRTY-FIVE CENT COUNTER.

3 | RULE, TWO-FOOT, 6 fold . . . . | 3 00 | 25 00

This is oftentimes more convenient than an ordinary four-fold rule, because it shuts up so as to go in the vest-pocket without any trouble.

A. I. ROOT, Medina, O.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 1tfd
*S. F. Newman, Norwalk, Huron Co., O. 1tfd
*Wm. Ballantine, Mansfield, Rich. Co., O. 1tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 23tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala. 1tfd
*S. C. Perry, Portland, Ionia Co., Mich. 23tfd
*E. Kretchmer, Coburg, Mont. Co., Iowa. 23tfd
D. McKenzie, Camp Parapet, Jeff. Parish, La. 1tfd
Ira D. Alderman, Taylor's Bridge, Samp. Co., N.C. 1tfd
*Jos. Byrne, Ward's Creek, East Baton Rouge Par., La. 23tfd
J. W. Winder, Carrollton, Jeff. Par., New Orleans, La. 3tfd
*E. Burke, Vincennes, Knox Co., Ind. 3-1
Richard H. Bailey, Ausable Forks, Essex Co., N. Y. 5-15
S. M. Darrah, Chenoa, McLean Co., Ill. 7-17d
S. H. Hutchinson & Son, Claremont, Surry Co., Va. 7-17d
N. E. Cottrell, Burdick, Porter Co., Ind. 7-17d
H. C. Duty, Walnut Hill, LaFayette Co., Ark.
Peter Brickey, Lawrenceburg, And. Co., Ky. 9tfd
C. C. Vaughn, Columbia, Tenn. 9tfd
*J. W. Keeran, S. E. cor. Mason and Moulton St., Bloomington, Ill. 9tfd
D. A. McCord, Oxford, Butler Co., O.

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.
P. L. Viallon, Bayou Goula, Iberville Par., La. 1tfd
C. W. Costellow, Waterboro, York Co., Me. 1-23
Kennedy & Leahy, Higginsville, Laf. Co., Mo. 23tfd
E. Kretchmer, Coburg, Montgomery Co., Ia. 23tfd
S. D. Buell, Union City, Branch Co., Mich. 5-7-9
C. P. Bish, Petrolia, Butler Co., Pa.

Foundation-Mills For Sale.

One nine-inch Dunham mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $20.00. The list price of a new mill of this kind is $40.00.

Also one 10-inch mill, Olm make, fixed over so as to do about as good work as it ever did. Price $12.00. **A. I. ROOT, Medina, O.**

A NICE LOT OF **GOLDFISH** now ready for sale. Order from W. L. McINTIRE, Mt. Vernon, Ohio.
789

HEADQUARTERS IN THE SOUTH
FOR THE MANUFACTURE AND SALE OF
BEE-KEEPERS' ∴ SUPPLIES.

The only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, etc. The Viallon and Root Simplicity Hives a Specialty.

ITALIAN QUEENS,

Untested, in April, $1.25 each; $13.00 per doz. From May 5 to June 1, $1.10 each, $12.00 per doz. After June 1, $1.00 each, $10.00 per doz. Tested, $2.50 each; select tested, $3.00 each to first of June. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

With pure Italian queen, containing 3 pounds of bees when received; in April, $4.00; after May 25, 25 cts. less. Safe arrival and satisfaction guaranteed.

BEES BY THE POUND,

Delivered, express prepaid, in lots of 5 pounds or more. Send for price. Same discount given as offered by A. I. Root, in GLEANINGS from month to month. For more particulars, send for catalogue for 1886. **P. L. VIALLON.**
7tfdb **Bayou Goula, Iberville Parish, La.**

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO., Watertown, Wis.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

VIRGINIA LAND AGENCY.

Cheap Farms. Splendid climate. Short Mild Winters. Good Markets. Descriptive Land List Free.
6-11b **GRIFFIN & JERVIS, PETERSBURGH, VA.**

BEES IN IOWA. —SEE FOSTER'S— ADVERTISEMENT.

HORN PAYS EXPRESS CHARGES SEE ADVERTISEMENT.

ITALIAN QUEENS, untested, May and June, $1.00; six for $5.00; after July 1st, 85c each; six, $4.50; 2-fr. nucleus, untested queen, June, $2.75; after July 1, $2.25. Send for price list of bees by the pound, fdn., etc. JOHN NEBEL & SON, High Hill, Mo.
7-12db

Comb Fdn., Bee-Hives, and other
APIARIAN SUPPLIES.

579d **JAS. A. NELSON, Wyandotte, Kans.**

SYRIAN AND ITALIAN QUEENS,

Before June 15, tested, $2.50 each; after, $2.00 each. Untested, before June 15, $1.00 each; after, single queen, $1.00; six for $5.00; twelve for $9.00.
6tfdb **ISRAEL GOOD, Sparta, Tenn.**

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db
A. F. STAUFFER & CO., Sterling, Ills.

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

I WILL SELL NOW for delivery first week in June, 2-frame nucleus, L. size, with brood, pound of bees, and untested Italian queen, at $2. All orders filled in order of receiving.
9d C. W. KING, Kalamazoo, Mich. *Box 336.*

PURE ITALIANS.

	May	June 1 to 18	June 21 to Oct. 1
Tested queens	$2 50	$2 25	$1 75
Untested queens		1 25	1 00
Bees per pound	2 00	1 50	1 00
Nuclei per comb	90	65	50

All communications promptly responded to, and all questions cheerfully answered.
7-13db **S. C. PERRY**, PORTLAND, IONIA CO., MICH.

1886 Golden Italian Queens. 1886

Our bees won first prize at the St. Louis Fair over several worthy competitors in Oct., 1885.

Extra tested queens, 2 years old	$3 50
" "	2 00
Untested, " after May 15	1 00

We will also dispose of 50 full colonies at the following low price, in one-story Simplicity hives:

One colony, with tested queen	$8 00
" " untested queen	6 50

Five or more, 10 per cent discount.

Delivered at R. R. station, and safe arrival guaranteed. Send for circular.

DARROW & ROSS,
8-10db **Lebanon, St. Clair Co., Ill,**

Italian Queens sent by Mail.

Untested queens from imported mother, April, $1.25; May, June, and July, $1.00. After April, per half-dozen, $5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

QUEENS. 1886. QUEENS.

Reared from Imported Mothers. Two, three, and four frame nuclei. Safe arrival and satisfaction guaranteed. Send for price list. Address
5-11db FRANK A. EATON, BLUFFTON, OHIO.

SOLD

Having sold the 100 colonies of **Bees** offered in the March Nos. of this journal, I am now booking orders only for

NUCLEUS COLONIES AND QUEENS. ALSO BEE-KEEPERS' SUPPLIES.

Send for 1886 price list. Address
7tfdb WM. W. CARY,
Successor to Wm. W. Cary & Son. COLERAINE, MASS.

LEWIS V-GROOVE

ONE-PIECE SECTIONS

Down, Down, Goes the Price.

First Quality, White Basswood, One-Pound Sections, In lots of 500 to 3000, $4.00 per 1000.

SPECIAL FREIGHT RATES.

If 3000 or more are wanted, write for special prices, delivered to you, freight paid by us.

G. B. LEWIS & CO., 9tfdb
April 15, 1886. **Watertown, Wisconsin.**

WANTED

A man in every town, as agent for our goods, which are used by every one who keeps a horse. Profit large. Will not interfere with other business.

Write for particulars to

LOWELL, TRACY & CO.,
9d **71 Asylum St., Hartford, Ct.**

READY, READY, READY.

100 nucleus colonies will be ready by the 15th or 20th of May, 3, 4, and 5 frames, at $4.00, $5.00, and $6.00; all with good laying untested Italian queens. They will all have plenty of bees, brood, and honey. Queens and full colonies for sale.
9-10d LOUIS WERNER, Edwardsville, Ill.

FOR SALE.

16 strong colonies of Italian and hybrid bees in Simplicity hives, each with nine frames of brood and honey. Price $5.00. If taken at my apiary, less.
T. J. EBERMAN,
9tfdb Merrimac Point, Monroe Co., Ill.

BARRELS! OAK; hold 50 galls.; steam-tested, and equal to the best, at the following prices, each: 1 barrel, $2.50; 2, $2.40; 3, $2.35; 4, $2.30; 5, $2.25; 6, $2.20; 7, $2.15; 8, $2.10; 9, $2.05; 10, $2.00. No further reduction for less than twenty. GEO. H. HOYLE, Mobile, Ala. 9-10d

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EVRY THING
SOLID AS ROCK
10c.
ROYAL
GLUE
MENDS
EVERY THING

ROYAL ❊ GLUE.

Mends Everything.

This is the best cement we have ever tried. Almost any article mended with it will break anywhere else before the place mended. It holds honey labels on tin, etc. Ten cents per bottle; ten bottles, 90c; 100 bottles, $8.00.

A. I. ROOT, Medina, O.

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400 Lbs. (about) of *Thin Foundation*
still on hand. The lot, 43c per lb.; 100 lbs., 44c; less, 45c. Few lbs. more brood at 35c.
9d H. L. GRAHAM, GRANDVIEW, LOUISA CO., IOWA.

KIND WORDS FROM OUR CUSTOMERS.

CHAPTER 12—HIT THE NAIL SQUARE ON THE HEAD.

Friend R., we want to say that never, in our experience, have we read so good a chapter as No. 12, page 220, GLEANINGS, March 15. You hit the nail square on the head. I believe hundreds will thank you for it. With best love and wishes.
R. C. TAYLOR.
National Cemetery, Fort Scott, Kans., Mar. 24, 1886.

"THE OLD ROOT AND THE ROOTLET."

I appreciate your efforts to give us the latest and best pertaining to bees, carp, etc., and now as the young "Rootlet" has come to the assistance of the "old Root," I presume the tree of knowledge will take a boom; in fact, it has already started, and I wish it success. C. R. SCHMELTZER.
Scholl's Ferry, Oregon.

HOW WE DO OUR JOB WORK.

Friend Root:—I have had hundreds of dollars' worth of printing done within three years, and consider myself a good judge of job work, and can say that the work you did on my "First Principles in Bee Culture" is very fine, and fully meets my expectations. G. K. HUBBARD.
La Grange, Ind., March 20, 1886.

A KIND WORD FOR GLEANINGS AND ITS WRITERS.

Received the goods all right and in excellent condition, packed by "Bert." They were eleven days in transit. I just got my freight bill, $1.13; reasonable enough for 125 lbs., the distance they came. I am highly pleased with them. Every thing comes together exactly right and true to measure. I am a practical carpenter, but I can buy of you far cheaper than I can make. As you seem to be criticised on the moral part of GLEANINGS, permit me as a subscriber to say that part is very welcome here. I was sorry to see friend Hutchinson disagree with you, for I like his writings in GLEANINGS very much. The information he gives is worth more to me than I pay for GLEANINGS. And then Doolittle—well, his contributions are second to none, in my estimation, *sub rosa*, not even to Novice himself. Now, as you have so many to cater for, you must expect to step on some of our toes. Personally, I chew tobacco; there you step on my toes; do I complain? Not much; you are too light to hurt. I believe you think it wrong, but I don't. I read your articles, however, for I like both sides of a question. I think you are doing as you wish to be done by; only give us the amount of bee-information we get now, and I won't complain.
Cape May City, N. J. GEO. W. BLAKE.

HOW SHALL WE KEEP THE BOYS AT HOME.

The opening-up of these diversified industries on the farm not only gives employment to persons of different tastes, but makes country life more attractive, and will do much to answer the question so often asked, "How shall we keep the boys on the farm?" Your Home Papers have been helpful to me, and I heartily sympathize with you in your efforts to conduct your business on Christian principles. WM. C. COOMBS.
Lindale, O., Apr. 4, 1886.

GET ABOARD AT THE RIGHT STATION.

I have been reading your A B C book, also some of your old journals, and found *them* very interesting. I have only one swarm of *Italians*. I wish to increase my stock. I want a through ticket, and wish to get aboard at the right station; therefore please find inclosed one dollar for GLEANINGS for this year. R. E. HARPER.
Hartsgrove, Ashtabula Co., Ohio.

THE EDITORIAL "WE."

Friend Root:—I am glad to see that neither you nor our *Ernest* young friend, who bids fair to be his father's worthy successor, is addicted to what is sometimes called the vice of "wegotism." I like to see any one, even if he be an editor, give his own opinions on his own responsibility, and not cover it up with a *we*, and it seems ridiculous for one who has reached the position of a "stump speaker," or for an editor of a one-horse county paper, to speak as if he represented a large and important constituency. You have my hearty sympathy in regard to your loss. BURDETT HASSETT.
Howard Center, Iowa.

EXCELLENTLY PACKED.

Please excuse me for not letting you know before this that the goods purchased from you came to hand all right. I have examined every article except the comb foundation, and have found them all right, and am much pleased with them all. They were excellently packed—not a single thing either broken or scratched by shipment. I am much pleased with the A B C book. Its being in the form of a cyclopædia makes it very easy to find just what we want at any time; and as to GLEANINGS, I do not think a person could invest an honest dollar in any thing else that would pay him better. Please accept my sympathy on account of your recent loss by fire. FIRMAN TETTEMER.
Montgomery City, Mo., Mar. 29, 1886.

KIND WORDS OF SYMPATHY BY A FELLOW-SOLDIER —OLD JACK.

It was with deep feelings of regret that I read of your heavy loss of property in the loss of your warehouse and contents, and the cruel loss of your old family servant "poor old Jack;" but I think I should rather be in your place than in the shoes of that poor miserable specimen of humanity, with the remorse of conscience that he must carry through life, although it seems sometimes if such a thing could be possible, that some folks were born without any conscience, or had lost the very small one they might have possessed. I am glad that your factory and lumber was spared, and that you are going to be able to fill all orders; and I hope the friends will all remember you in your misfortune, and give you their orders, and will all be blessed with good luck with their bees, so they will prosper and need to send good large orders. May the Lord ever bless you, and keep and prosper you, both spiritually and temporally, all of your days; and may you finally receive the reward of the righteous, is the best wishes of your friend and fellow-soldier of the cross. D. H. ALLEN.
Birney, Pa., March 29, 1886.

[Poor faithful old Jack! After giving a life of almost twenty years of faithful service to our family, letting each new baby learn to drive by holding his lines, and learn to ride by trying to sit astride of his great broad back; after carrying the whole family, singly or collectively; after pulling boxes and packages through the mud, or our whole factory, almost, and never flinching, poor faithful old Jack lost his life by the burning of our warehouse, Mar. 7, 1886. He was the special property of my wife, having been raised by her father; and now the only memento of this faithful old servant is a blackened horseshoe. May God help us to remember these household treasures while they are with us.]

OUR $1.00 FORCE-PUMP.

The goods shipped me the 16th were received to-day, and are all right. The pump was a surprise to me, for I did not expect so perfect a one for the money. Many thanks for the favor.

Nichol Junction, Mo. WILL T. ZINK.

DOTH JOB FEAR GOD FOR NAUGHT?—JOB 1: 9.

Mr. Root:— I once felt a little vexed at you, as I honestly thought you had not dealt fairly with me concerning an advertisement I sent for GLEANINGS. I then used language like this: "I once had some faith in your religious pretensions. I now find I was deceived." Since that I have watched your course, and am now satisfied that your intentions are honest, and that your Christianity is sincere, hence I will humbly beg pardon for having used the language above quoted. I have met a number of bee-keepers who have, like myself, at some time in the past had serious doubts as to your Christianity, believing you were pursuing this course for the sake of the "almighty dollar;" but I think almost all of them are now convinced that you are consistent with your profession. I thought I would feel better mentioning this matter, and have all right in the sight of God.

JOHN A. BUCHANAN.

Holliday's Cove, W. Va., Jan. 23, 1886.

HONEY COLUMN.

CITY MARKETS.

MILWAUKEE. — *Honey.* — Recent receipts of honey on this market give now a very fair supply for customers for either comb in sections or extracted, and we can quote choice 1-lb. sections at 17@18c; 2-lbs., 16@17c; extracted, in kegs or tin, white, 7½@8c; dark, 6@6½c. *Beeswax*, 25c. Demand fair.

April 26, 1886. A. V. BISHOP,
142 W. Water St., Milwaukee, Wis.

KANSAS CITY.—*Honey.*—Market firm for 1-lb. sections at 15@16c., and very little on the market. 2-lb. sections, 10@12 cents; California the same. Extracted, dull and on demand, 3@5 cents. *Beeswax*, 22 cents. CLEMONS, CLOON & CO.,
Apr. 20. Cor. 4th & Walnut St's., Kansas City, Mo.

CINCINNATI.—*Honey.*—No new feature whatever on the market. Trade perhaps duller than usual. Manufacturers are seeming to take a rest. Prices are nominal, and no changes to note from last quotations. *Beeswax.*—There is a fair demand for beeswax, which we quote at 20@25c on arrival.

April 21, 1886. C. F. MUTH & SON,
S. E. Cor. Freeman and Central Avenues,
Cincinnati, Ohio.

CHICAGO.—*Honey.*—The demand for comb honey is good, and the supply of choice grades is scarce. Prices range at 16@17c for fancy; extracted shows little change, and demand light. *Beeswax*, steady at 25c. R. A. BURNETT,
April 21, 1886. 161 S. Water St., Chicago, Ill.

BOSTON.—*Honey.*—There is no change in prices, and rates are a little slow. BLAKE & RIPLEY,
April 21, 1886. 57 Chatham St., Boston, Mass.

CLEVELAND.—*Honey.*—The market continues bare on 1-lbs., best white, which would bring 14@15c on arrival. Best white 1-lbs. are selling at 12@13. Old, 8@9. Extracted, 7@8. *Beeswax*, 25@28.

April 20, 1886. A. C. KENDEL,
115 Ontario St., Cleveland, Ohio.

ST. LOUIS.—*Honey.*—Choice comb honey has good inquiry. We quote white clover at 14@16c. Basswood, 12@12½c. Buckwheat and Spanish needle, 10@11c.

Extracted slow at 7@9c in cans; 5@6 in bbl. Dark, in bbls., is selling as low as 4c.

Beeswax.—Finds ready sale at 21c for good stock, though the supply is liberal.

April 21, 1886. W. T. ANDERSON & CO.,
104 N. 3d. St., St. Louis, Mo.

DETROIT.—*Honey.*—The market is almost bare of comb honey, with but little demand, however, at about 14 cts. for best. *Beeswax*, scarce at 25c.

April 21, 1886. M. H. HUNT,
Bell Branch, Mich.

BEAUTIFUL
FOUNDATION

And very choice all-in-one-piece **SECTIONS,** V-groove — wholesale and retail, and exceedingly cheap. Send for Samples and Free Price List of every thing needed in the apiary.
(Near Detroit.) M. H. HUNT, Bell Branch, Wayne Co., Mich.

SECTIONS,

$3.50 per M. Dovetailed, all-in-one-piece. Send 2-cent stamp for sample. **E. S. MILLER,**
9-12db **Dryden, Mich.**

CARNIOLAN
QUEENS & BEES A SPECIALTY.

Send for Descriptive Price List and Circular.
9tfd **H. F. SHANNON, Clarksburg,**
(Formerly of Spring Hill.) **Decatur Co., Ind.**

In Order to Introduce my Golden Italians

And place them within reach of all, I will send untested queens for 90 cts. each; ½ doz., $5.00; 1 doz., $9.50. Tested queens, $1.75 each. My queens are reared from an imported mother, and in full colonies; 2-frame nuclei, with untested queen, $2.50; 3-frame nuclei, with untested queen, $3.00 (on Simplicity wired frames). Full colonies, Italians, in 8-frame Simplicity hive, $5.50. Full col. hybrids, $4.00. Ref. A. I Root. Address **A. B. JOHNSON,**
9tfdb **Clarkton, Bladen Co., N. C.**

CONVENTION NOTICES.

The next annual meeting of the Michigan State Bee-Keepers' Association will be held in Ypsilanti, Dec. 1st and 2nd, 1886. All are cordially invited. H. D. CUTTING, Sec.

Clinton, Mich., Apr. 24, 1886.

The Central Michigan Bee-Keepers' Association will meet May 18, 1886, with Capital Grange, at their hall in North Lansing, at 10 o'clock A. M., to hold three sessions, forenoon, afternoon, and evening. All bee-keepers, and those interested in bee culture, are invited to attend, and to bring or send hives and fixtures, and any thing of interest to bee-keepers. For any special information, address the secretary,

North Lansing, Mich. E. N. WOOD.

As per notice previously given, the bee-keepers of Stark and adjoining Counties met in Grange Hall, Canton, O., Apr. 13, 1886, and organized the Stark Co. Bee-Keepers' Society. A very pleasant and profitable meeting was had, and there are prospects of great good being done the cause through the instrumentality of this society. The next regular meeting will occur on the last Tuesday in August. MARK THOMSON, Sec.

Canton, Ohio.

The Keystone Bee-keepers' Association will meet at Court-House in Scranton, Pa., on Tuesday, May 11, 1886, to elect officers, transact important business, and listen to the able papers of Messrs. G. M. Doolittle on the production of comb honey; L. C. Root on the production of extracted honey, and the Dadants on queen-rearing and general management. Come one and all, and make this meeting the best of all.

Clark's Green, Pa., Apr. 2, 1886. ARTHUR A. DAVIS, Sec.

CIRCULARS RECEIVED.

The following have sent us their price lists:

S. W. Morrison, Oxford, Pa., an advertising sheet—Carniolan queens.

Geo. F. Smith, Bald Mt., Pa., a 4-page list—apiarian supplies.

Hemphill & Goodman, Elsberry, Mo., one-page list of bee-supplies—specialty, the Ideal Reversible hive.

M. H. Hunt, Bell Branch, Mich., an 8-page list of bee-supplies in general. Mr. Hunt is every bit an energetic business man, and we note with pleasure the consequent growth of his business since he began.

C. A. Stillman, Hornellsville, N. Y., a 6-page list of bee-supplies.

J. C. Mishler, Ligonier, Ind., an advertising sheet of Italian bees and queens.

Jas. M. Denham, Valley, Ky., an advertising sheet of bees and poultry.

B. Davidson, Uxbridge, Ont., a 4-page price list—bee-supplies and fanning-mills.

The following were printed at this office:

J. B. Hains, Bedford, O., an 8-page list of apiarian supplies in general.

Jos. D. Enas, Napa, Cal., an 8-page circular of bee-supplies.

I am being asked my opinion of the new circulars Mrs. Cotton is again sending out quite plentifully. The statements she makes, and the prices she charges for the goods she sends out, would, in my opinion, forbid her being classed with our regular supply-dealers, to say nothing of the strings of complaints against her that have filled our bee-journals for years past.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XIV. MAY 1, 1886. **No. 9**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 5 or more, 75 cts. each. Single Number, 10 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18c per year extra. To all countries NOT of the U. P. U., 42c per year extra.

NOTES FROM THE BANNER APIARY.

No. 77.

THE WINTERING PROBLEM.

IN the article quoted last month from Mr. Quinby, it was apparently shown that the feeding of sugar did not prevent diarrhea. Mr. Quinby did not say so, but it is presumable that there was bee-bread in the combs, and that the bees were wintered out of doors. Such being the case, the trouble is easily accounted for, at least by some of the leaders in the "Pollen Theory," by saying that the temperature was so low that the bees sought and consumed the bee-bread.

Dr. Joslin says that the temperature should be kept about 40° in the fore part of the winter, in order that the bees may remain in that quiet state that Mr. Clarke calls hibernation, which is so conducive to their health. Later in the season, when they have commenced breeding, and are more lively, he would raise the temperature, *a la* Boardman, to 45°, or perhaps 50°. I do not know but I agree with this. I would say, however, that some of my colonies were *nearly* as quiet when I took them from the cellar the middle of April as they were in December. Dr. Joslin says, that "bees will not eat pollen when kept warm enough," hence the theory vanishes. Yes, but suppose they are *not* kept warm enough, what then? And suppose that the honey is full of nitrogenous matter, what then? No one has claimed that pollen would cause dysentery among bees unless they consumed it. How shall we prevent its consumption? is the question. Shall we remove it from the hive, or is it possible to keep the temperature at such a point as to prevent its consumption? Perhaps a combination will answer. We will bring the bees through, to the close of the honey season, in nearly a starving condition, feed them sugar, then *keep them warm.* I have just been back and read Mr. Doolittle's account of how he warmed up his bee-cellar, by artificial heat, to 50°. It was in the fore part of the season that he did this. I can not help wondering if the result would not have been different if the heat had been used in the latter part instead of the fore part of the winter.

You say, Mr. Editor, that your use of artificial heat proved disastrous in the house apiary. At what degree was the mercury kept, and at what part of the winter was it employed? I have been corresponding with Oliver Foster. He says his house-apiaries are from *warm* to *hot* according to the ventilation, and during the past winter he has lost only 2 colonies out of 296. He has tried sub-earth ventilation in connection with house-apiaries, and abandoned it on account of expense and *uselessness.*

I put 25 colonies in my cellar, under my kitchen, last fall. Some had natural stores, some sugar stores, some *no* bee-bread (*one* was overloaded with it), some were comparatively free from bee-bread, some were prepared early, some late, some later, and some *latest,* etc. The temperature was variable. It would average about 45°; in fact, there is where it was most of the time. Some cold mornings it would be found at 38°; in two hours, however, it would be back to 45°. *Two* mornings it was at 35°. In warm afternoons it would run up to 50°. There is only a single door between the cellar and the outer air. The cellar is damp. It was visited several times a day, sometimes with a light. Quite a good many bees came out and died upon the floor. One colony was queenless, tried to raise another, raised some drones, and died. The one having combs overloaded with bee-bread perished with diarrhea in its worst form, although it lingered until nearly spring. This is, perhaps, hardly a fair test, as the combs were selected, and were so full of bee-bread that it didn't seem as though there was room to store the sugar syrup. It was fed early. Others may have succeeded in feeding bees late, and in preparing them for winter late; or, rather, they may have been successful in wintering bees thus prepared, but I have not *usually* succeeded. I commenced last year, the first of September, to prepare bees for winter. Every few days I would prepare a colony or two. All those prepared in September, with the exception of the one that had so much bee-bread, and the one that was queenless, came through in good condition, with no distinction between natural stores and sugar; but all those that were fed or prepared for winter in October, either died or were so weak that they were nearly worthless. Two of them died, and the rest were united until I have only 17 colonies left. Those colonies that were prepared late did not seal their syrup. There were *slight* traces of dysentery in the colonies fed late. W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

Friend H., when we used artificial heat in the house-apiary it was kept warm by our lamp-nursery, and the heat was used in the spring of the year, during March and April. I do not remember the temperature, but I think I aimed to keep it about 60 or 70°, that the queens might extend their brood-nest without being in danger of getting chilled. The lamp-nursery answered the purpose of keeping the building warm, even when it was cold and frosty outside. It started moth-worms nicely in empty combs, but it didn't seem to help brood-rearing much. With the experience I have since had in raising plants in the greenhouse, I think I might do better; but I believe we can raise all the bees we can make use of by cheaper means than the use of artificial heat.

SETTING THE BEES OUT OF THE CELLAR.

A DIALOGUE.

"GOOD morning, friend Doolittle. I called to see if you had set your bees out of the cellar. I heard yesterday that you did not practice setting your bees out as early as some of us do."

"No, I have not set the majority of mine out yet, friend S., and I don't see any object in getting them out before there is any thing for them to do. They only waste away in their fruitless attempts to get sap from the sap-buckets, water from the cold brooks, and by trying to rob from each other. By leaving them in, this loss, vexation, and robbing are avoided, while the colonies are much better for the season's work. Have you set yours out ?"

"Yes: I set them out more than two weeks ago, for I thought I must, as I read in one of my agricultural papers that bees should not be left in later than April 1st."

"Have you had any trouble with their robbing ?"

"Yes, plenty of it; and I called to see what I could do about it. The paper said, that after the bees were out they should be fed a little in the middle of the day, so as to stimulate brood-rearing. So I went to feeding, and I have had an *awful* time."

"Well, if that is what you have been doing, I don't wonder; for I tried that plan of feeding years ago, and I, too, had an awful time. It seems strange to me that such advice should get into print when all bee-keepers must know, it seems to me, that such a course is sure to 'raise a row.' If you feed at all, the evening is the time to do it, feeding about sunset on warm evenings, and about dark on cool. The reason for feeding at dark on cool nights is, so that no bees will get lost by flying out, as feeding always excites the bees to activity; but, lest I forget it, I will tell you what I do to stop robbing when the bees get started at this time of the year. As soon as I see that a colony is being robbed I close the entrance so that only one bee can get in or out at a time. This keeps the robbers from getting much honey, and allows the bees from the hive to get in. At the close of the day I set a comb of honey in the robbed hive, if I think they have been robbed short, and set the hive in the cellar, leaving it there until pollen is plentiful from elm and soft maple, at which time there is little danger from robbing, as the bees now care more for pollen than any thing else. Now return the colony to its stand and all will be well."

"When will you set your bees out?"

"When the before-mentioned trees get in blossom, so that the bees can do something to advantage, which will be in a few days now, if the weather holds warm as it is this morning."

"One other thing I should like to know, and that is, how you keep the bees from stinging you when you are setting them out. I got stung fearfully while setting mine out. My hives have loose bottom-boards, which I do not carry into the cellar; and upon setting the hives out, the bees would begin dropping out, when they would get in my clothing, or anywhere they could, and then sing and sting."

"I know how this goes, having often had a trial of it; and of all the wicked bees to sting, those which drop from the hives at such times beat any except the Cyprians. Besides, there is quite an item of loss here; for all these bees which drop out, mark their location where they drop, and are lost."

"Yes, I noticed that part; for in carrying out one hive I came near dropping it close by the entrance of the cellar, which caused a lot of bees to get out, and they hung around there all day, ready to sting me every time I went near."

"Exactly; and now I will tell you how to prevent both loss and stings. Just outside the cellar-door place a wide board, and close by place your smoker, all ready smoking. As soon as you get to the door of the cellar with the colony, set it on the board and immediately puff some smoke under the bottom. Now close the cellar-door and place the hive on your spring wheelbarrow, puffing in a little more smoke at the bottom of the hive. Wheel to the stand, and you will lose no bees nor receive any stings. This also keeps the bees from all rushing out pell-mell, and thus less confusion results."

"A spring wheelbarrow! What do you mean?"

"Do you take GLEANINGS?"

"Yes."

"Well, I mean just such a one as the latest one pictured in that paper."

"Do you set your bees all out at one time, or on the same day?"

"No: I set eight or ten out in the morning of a pleasant day, as soon as the mercury marks 45° in the shade, and then as many more at about 4 o'clock in the afternoon. In this way there is no chance of robbing or mixing, as these hives are scattered about in the yard while but very few bees are flying from any save these hives, and all gets quiet before night or the middle of the day."

"How about setting the colony on the same stand it occupied the season before?"

"I pay no attention to this; for by scattering them about, and using the plan I do, all mark their new location perfectly."

"Well, good morning, as I see you are in a hurry."

"Good-morning. Call again."

G. M. DOOLITTLE.

Borodino, N. Y., Apr. 17, 1886.

DEVELOPING A HOME MARKET.

NO NEED OF SENDING OUR HONEY TO THE CITY MARKET.

IN his article in GLEANINGS for Apr. 1, page 276, J. H. Martin says: "These low prices are facts we have got to face." Now, what is it that causes these low prices? Perhaps some will say, overproduction; but I think this is a mistake. I believe that the present low prices of honey are caused more by producers neglecting their home markets, and sending the entire crop to the large markets, than by overproduction.

I wish that village of 10,000 population which friend M. speaks of were near here. I think I could show him that honey could be sold there, and at a better price than in New York or any other large market. In two small villages near here, of about 1000 population each, there was sold, last season, over a ton of honey, netting the producer about 13 cts. for comb, and 11 or 12 cts. for extracted. In these same villages, a few years ago, scarcely a pound of honey was sold. We have also sent honey to other villages along the line of the A. & S. R. R., which has netted us about the same price. As friend M. says, when a bee keeper has several tons he can not work it all off in this way; but every pound that is sold in country villages is one pound less to be sent to the large markets, which are almost always overstocked.

I know that it costs something to develop a market in country places; but I believe that it pays in the long run, for we get a line of customers that are reliable, and can be depended upon year after year. We have customers who purchase whole cases (30 lbs.) at once, for their own family use, and their children do not "get sick," neither do they "stop short off," as long as we supply them with a good article of well-ripened honey. Our experience has been, that there is always a demand for the best; but a poor article sells slow at almost any price. Some merchants refuse to sell honey at first. They get an idea that it is bad to handle, and will daub their other goods; but they can usually be induced to try it when they see that it is put up in neat attractive cases, and that it is convenient to handle.

Since we can not compel people to buy our honey, we must try to produce nothing but a first-class article in evey respect, and then spare no pains to put it up for market in the most convenient and attractive manner possible.

Afton, Chenango Co., N. Y. O. G. RUSSELL.

TRUTH BOUND TO PREVAIL.

TURNING THE TABLES.

FOR the last three winters, after selling my own crop of honey I have been selling for bee-men in Wisconsin, Iowa, and Illinois. Yes, the train-men would roll off the 500-lb. barrels, right in broad daylight, for me. It was not long till it was reported that Lindley was selling artificial honey. I know it has made me feel sad to know that people would think so. Some thought I was deceived in the honey; but I have gone on with my business, and I am glad to say that my trade is on the increase, and falsehood is giving way to truth; and I have gone from place to place teaching the people that bee-men do not make honey, as stated in the papers. Yes, I have gone to nearly every house in a city of 15,000 inhabitants, holding up the banner of truth for the bee-war. If I have made but little money, I hope that the bread I have cast on the waters will be gathered many days hence.

Sometimes when I feel weary, and trade is dull, I think of the day that is not far off when, instead of selling from 3 to 50 lbs. at a place, I may sell 200 or 300 lbs. or more. Now, this is the point I want to make: That those of us who are poor, and need money to pay our debts, should not wait for some one to send for our honey, paying us a small price for it, nor that we should send it to the city to glut the market there. On the contrary, let us take a sample, go right out among our neighbors, and teach them to use honey, even if it does take work. Some, I know, are too proud to do this sort of work; but, "He that humbleth himself shall be exalted; but he that exalteth himself shall be abased."

Now, when we get every small town, as well as the large ones, well supplied with good honey, and the vast multitudes in the country taught the truth in regard to honey, then I think it is time enough to talk about "too much honey" raised. Yes, brother Root, I think the day is not far off when we can sell honey to large numbers of people who now use none.

I have been in the bee-business six years. I have not done much at it, I know, yet; but it has been my own fault, mostly. I shall not give it up, but press on by the help of God.

In one of our daily papers the other day I saw something like this: That the honey sold by J. R. Lindley, of Georgetown, was examined by Prof. Cook, of the Agricultural College, Lansing, Mich., and pronounced pure honey. Doubting parties sent a sample of the above honey to friend Cook. Yes, I shall show the public that my honey is pure.

Georgetown, Ill., Mar. 21, 1886. J. R. LINDLEY.

Thanks, friend L. Your suggestions are excellent, and they apply not only to disposing of a honey-crop, but to any sort of a crop. It is everybody's business to use all proper means to dispose of his produce, whether he is a manufacturer, farmer, gardener, or bee-keeper. And there is one thing I especially like about this matter of going around among your neighbors with what you have to sell. It opens the way for pleasant and friendly relations in your whole community; and where one is seeking the kingdom of God and his righteousness, as I am sure you are, by the Scripture texts you give us, it gives him a wonderful opportunity to work for the Master. By all means keep your neighbors thoroughly posted in regard to your produce and what you have for sale.

BOOK-REVIEW DEPARTMENT.

SIMMINS' NON-SWARMING SYSTEM.

BEFORE me lies a copy of a little work bearing the above title. It is an English production, written by Samuel Simmins, Sussex, England. It contains 64 pages, concisely setting forth the system as therein described. Briefly, the system, when comb honey is the object, is this:

Just prior to an expected honey-flow, crates containing sections filled with *comb* previously built out are placed over the brood-nest. These crates are not tiered one above another, but are of such a size as to be arranged horizontally, side by side. So far the method is similar to the one advocated by Walter B. House and others a few years ago; that is, that the sections must be in readiness, filled out with new empty comb.

Mr. Simmins discourages the use of heavy foundation in the brood-chamber, claiming that it is a useless expense. This will probably accord with the views of Messrs. Doolittle and Hutchinson, as expressed by them a short time ago. In the lower story, Mr. Simmins reduces the number of brood-combs to about half, filling out the empty space in front of the entrance with empty frames without even foundation for starters. He claims that the brood-chamber, as thus arranged with the filled sections above, does away with swarming altogether; that the bees coming in heavily laden with honey, on finding no convenient place to store the honey in the brood-chamber, will carry it above into the sections, filled out with comb. The author further claims that he thereby secures the advantages of contraction, yet allows the bees a large amount of room. In order to continue this state of affairs he keeps the upper story well supplied with sections filled with comb; and if the bees should build comb in one of the empty frames (which he says they rarely do), he cuts it out and places the same in the sections. The whole secret, he says, is to give plenty of room. So much for the non-swarming system.

IS NATURAL COMB CHEAPER THAN THAT PRODUCED FROM FOUNDATION?

Among other things, the author, as before stated, does not recommend foundation for the brood-chamber. His reasons for so doing are, that brood-comb can be produced more cheaply by the use of raw sugar, and empty frames. There are many of us who are ready to take issue with him here. According to the experiments of Prof. McLain recently, and others in former times, it takes 20 lbs. of syrup to make one pound of wax. When syrup is 5 and 6 cents per lb., it looks as if combs made in this way were pretty expensive. To put it in Prof. McLain's own words, in his report for 1886 he says, "Estimates can easily be furnished to prove that the production of every pound of wax costs the bee-keeper ten times the sum realized from its sale." Mr. Simmins does not, however, disparage the use of foundation in the surplus-department. In fact, the comb filling his sections is first built from foundation.

In regard to reversible frames, the author can see no real advantage to be gained from their use, notwithstanding his American cousins have said so much in their favor. After numerous experiments, he says that, in his opinion, many of the reversible frames now in use will, in a short time, remain unreversed.

While there are some things we would criticise in this little work, a careful perusal of the same will convince us that there is much that is valuable as well as practical in its pages. Its teachings are not strictly new, but they are presented in a rather new light. I do not know the price of it, but I presume it could be purchased for a small amount, of the publishers, T. Pettitt & Co., 22 Fifth St., London, W., England. ERNEST R. ROOT.

WINTERING IN CELLAR AT HIGH TEMPERATURE.

EXPERIMENTS IN REGARD TO SAME.

FRIEND Miller's report, page 22, has been the means of my attempting to give my experience in cellar wintering. I shall not attempt to answer all of friend Miller's questions in regard to what is the best temperature for cellar, etc., but I will give my experience for the last four years.

I have made bee-keeping a bread-and-butter business for the last eight years, and have never lost over 8 per cent in any one year, but have had experience in what we will here term high-temperature cellar wintering for only four years. Previous to eight years ago I had kept bees in connection with my farm, the bees getting attention when there was nothing else particularly urgent for me to do, and during that time it was my custom to winter in the cellar; and I always noticed, about the middle of March, when the temperature began to rise, my bees would get uneasy, just in proportion as the temperature rose, and it then seemed to me that if I could keep the temperature down to 40 or 45° all would be well; but I found I was not equal to the task. After making bee culture a study and business, devoting my entire time and efforts in that direction, it occurred to me that, if the little pets would keep quiet, why not give them about 60° in the early winter, and keep the temperature there? Would it not be as well?

About that time friend Barker gave his experience in high-temperature wintering, and I arranged my cellar to give the new theory a test. I now put my bees in as near the 15th of Nov. as I can, and leave them in until those packed in chaff bring in pollen plentifully. The bees in the cellar are quiet—as much so in April as in February. I have no occasion to give them a cleansing flight, which I used to think necessary when they were in a cold cellar. I keep the temperature as near 65° as I can (and it seldom varies more than two or three degrees), and I notice that many strong colonies cluster on the outside of the hive, yet seem very little disturbed when entering the cellar with a light, which is my custom to do quite often. To avoid running too much risk in any one place I have been in the habit of dividing my bees in two or three lots of nearly the same number of colonies, and packing the strongest lot in chaff, and putting the others in cellar and clamp; but after four years' experience in burying in clamps I have discarded that method entirely, as I find (with me) it is not only uncertain but very untidy as well. The last three years I have not lost a single colony out of 115 wintered in the cellar, while I lost about 5 per cent of those packed in chaff.

Last winter, to give a fair test, I reduced the temperature to 48°. At 52° the bees wintered nicely, but were somewhat uneasy in the spring, and were set on their summer stands two weeks earlier than the two years previous, and the result was spring dwindling; and although we did not lose any, yet all were weakened to a greater or less extent. I had in January 117 colonies in the cellar, with the thermometer marking 65° during the cold wave, while it was 16° below, outside. Now, the principal advantage I receive from a high temperature is, less honey consumed, which is quite an item with me. I can leave my bees in the cellar very much later in the spring than I could at 40°, thereby in a great measure avoiding spring dwindling. Why they do not dwindle seems evident enough to me; but my theory may not be correct; therefore I will leave others to draw their own conclusions. From these facts I also find that nearly all will breed in the after part of the winter, and thus some of the weaker colonies actually come out stronger than they were when they went into winter quarters. Friend Miller asks, "Should our cellar gradually become warmer toward spring?" From my past experience I should answer no, but keep the temperature as even as we can. I never care how much pollen there is in a hive, as I never had a case of dysentery when the temperature did not get below 50 during the winter. Now, Bro. Root, I learn by the bee-journals that this question was pretty well discussed at the Detroit Convention, but it seems to me we are keeping the temperature of our cellars too low; also, I fear, we are too cautious about putting too great a number of colonies in one cellar; and it is my belief that bees need but very little air in winter; and I would modestly ask if we are not inclined to give them too much draft during their winter repose. I have given my experience, hoping that some who have not been as successful in wintering as myself, may be benefited thereby; and if such should be the case I shall feel amply rewarded.

A. E. WOODWARD.

Groom's Corners, N. Y., Jan., 1886.

Friend W., this matter of wintering bees at a temperature of from 60 to 65 degrees was a good deal discussed in Detroit, and it is one of the puzzling things about bee culture. After we had got it laid down in the books as beyond question or controversy, almost, that the temperature of the cellar should not be much if any above 50 degrees, here we have, at this late day, quite a number who practice and recommend a temperature of 65 degrees, or even higher. If the bees can be kept quiet, and be made to stay in their hives, or even on the outside of their hives, no doubt it will be a saving of feed.

SOME NEW-OLD MATTERS.

RED-CLOVER QUEENS; JUGGING BUMBLE-BEES.

SOME new old matters are being discussed over again, I see. Noticing advertisements as well as reading matter, I could not but smile when reading *red-clover* queens and *red-clover* bees for sale by two or more dealers. Visiting the blooms of red clover belongs to all the yellow races of *Apis mellifica*.

Is not Dr. Arwin, page 587, 1885, mistaken about queens being produced in 8 days from starting of cell? I think Dr. Gallup, when living in Iowa, several years since, made the same mistake. I have reared thousands of queens, at all seasons, from early spring to late autumn, and have never yet had a queen emerge from the cell in 8 days from the starting of the cell.

I agree with Mr. Searcy, of Griffin, Ga., in all he says concerning the "Mt. Lebanon" strain of Syrian bees. He could have said more in their favor, and some non-desirable qualities. A cross with the Italians takes most of the ill temper out of them, and adds to their size and beauty. They have some good qualities not possessed by the Italians. I like them.

And Bro. Wm. F. Clarke is about to become almost converted to clipping queens' wings, and says that one argument he has used is, it disfigures the queen. Without reference to back volumes of the bee-journals, if I remember correctly, he argues that the continual clipping of queens' wings would ultimately result in a feeble or wing-deformed progeny—that it was barbarous, and in keeping with the same ignorance as plucking geese, etc. His arguments were from wrong premises. I have not yet discovered that it interfered in the least with the queen's value, or that of her progeny, to clip off the wing. In fact, in performing the operation, just as I would give the scissors the clip, the queen would, in turning round and round, get one foot, or one foot and part of the leg, between the scissors, and off it would come too. I have kept such for more than one season, without seeing any ill effects from the amputation.

And you, Mr. Editor, say in foot-notes on the article on jugging bumble-bees, you never had any faith in it, because it seems so unreasonable. In Moon's *Bee-World*, Vol. 3, p. 175, you may find the same method for trapping them. A brown or blue jug is as good as a black one, Mr. Root, and will capture them. After one or two get in and get to buzzing, they pour in like sheep going through a gateway. In my boyhood days, one of the amusements of the schoolboys at recess, or after dismissal in the evening, was fighting bumble-bees and breaking up their nests. From ill usage our old wool hats had "gone to seed," so to speak, elongated, with a hole in the top. With the face well protected and neck tied up with handkerchiefs, the enraged bumble-bees were sure to plunge into the hole in the top of the hat, and were not in a hurry to get out.

From your report, and that of others, I was not a little surprised at the large trade there is still in the queen-supply business. Eight or ten years ago one would have thought that by this time everybody and everywhere would be supplied with the new races of bees; but it seems the business is enlarging and increasing. One of the boys last winter got me shifted on a side track in business, and I reared but few queens as compared with former years. But I am at home now, and will be in the apiary all the time, and will be in the bee-business in all its branches the coming season. Some of the pleasantest and happiest days in years gone by were spent in watching and working in the apiary and vegetable-garden. Work (not too hard) gives a relish for one's meals and sound sleep. And you have but little idea what a pleasure and satisfaction it gave me when I used to send you by mail, one, two, or three dozen queens, and receive a postal acknowledging the same, with the remark, "The queens were lively as crickets,"—" fine, "or " good " or "satisfactory," or something of the sort, and "not a dead bee in the cages."

When you again come within one hour's ride of my home, as you did on your trip to New Orleans, I will just say the latch-string hangs on the outside; and although you might find things loose around, as though a widow lived here, nevertheless you'd be welcome, and we should like to see you.

W. P. HENDERSON.

Murfreesboro, Tenn., Jan. 18, 1886.

Several have reported queens hatched in eight days from the time of the starting of the cell. If I remember correctly, I think we have had such cases in nine days. Is it not possible, under some circumstances, that a worker-larva of just the proper age might be changed into a queen in eight days from the time brood was given to a queenless colony? —You are right, friend H. Many of these things have been discussed for years; but a new generation has sprung up since GLEANINGS was first started, and the matter is new to them, if not to the veterans. The matter has been very fully discussed as to whether clipping queens' wings could result in wing-deformed workers. I think those most capable of judging decided that the matter would have to be carried on for ages, and even then might not affect the wings of the workers at all.—I am very much obliged for the additional light you give us in regard to the black-jug bumble-bee trap. If they go into the hole because they hear their comrades buzzing inside, and if the color of the jug has nothing to do with it, it puts quite a different phase on the matter, and I have no doubt but that you are right.—In regard to the queen-business, almost any business will enlarge and increase if the manager keeps himself in readiness to fill orders promptly every day in the year. We don't quite do that, but we come pretty near it on queens and bees—at least, so near it that people have got into the habit of saying, "If you send to Root you will get your queen by return mail;" and a good many of the brethren know by experience, that, when they send to some others, and those, too, who advertise pretty extensively, they may have to wait not only days but sometimes weeks. Friend H., it gives us pleasure to receive queens with not a bee dead; and as I have told you before, there is another thing I greatly enjoy; that is, handing over the cash to those who are helping us to be prompt to our customers.—I am sure I was not aware that I was within one hour's ride of one of our old friends and patrons. Had I been, I fear I should have been a trifle uneasy about passing you by.

A COLONY THAT WOULD NOT ACCEPT OF A QUEEN.

ALSO A COLONY THAT WAS QUEENLESS FROM THE 10TH OF AUGUST TILL THE 14TH OF APRIL, AND STILL WINTERED ALL RIGHT.

THE 10th of Aug., 1885, I removed a queen from a colony of bees. They at once started cells. On the 10th day from the time of removing the queen, or on the 20th of Aug., I destroyed all cells and caged a laying queen over the frames. After being caged 24 hours the bees acted well disposed to her, and I liberated her. In a few hours, I looked and saw that she was there all right unmolested. Next morning she lay in front of the hive dead. I then examined thoroughly for a cell or a hatched queen, thinking I might have missed one, but I could find none, and so I caged another queen over the frames. They acted kindly toward her, and in 48 hours I liberated her. The bees seemed to receive her well. In a few hours I examined the colony, and she was walking leisurely over the combs, the bees seeming to take no notice of her. Next day I looked carefully in front of the hive, but could see nothing. The next day I examined, expecting to see eggs, and found the queen on the bottom-board dead. Then I went over them thoroughly, but could find nothing that had any signs of a queen, but I decided there must be one and so I waited two weeks.

At the expiration of that time every thing remained the same. I then put in a frame of hatching eggs, but they started no cells. Then I went over them again, then tried another queen, with the same result. Fairly disgusted with them, I let them alone. When I put my bees into the cellar there was about a quart of them, perhaps three pints. I set them in, and, to my surprise, this spring, the 14th of April I found nearly as many, apparently, as last fall. I set them out, gave them a thorough looking-over, but could find no queen or eggs. I then gave them a frame of hatching eggs, but they started no cells; and as I had some surplus queens on hand I tried it again. They accepted the queen, and she is all right.

Now, what should have caused that colony to be so obstinate? Has any one had a case like it?

HOW I WINTERED MY BEES.

I put into a room 10 feet square, made of matched boards, without any ventilation, 75 colonies — 20 strong, 20 fair, and 35 rather light; temperature ranged from 45 to 55°. I removed them Apr. 14 and 15, with the following result: 18 extra strong, 35 good, 14 light, 4 too weak to recover, and 6 dead outright.

J. B. MASON.

Mechanic Falls, Me., Apr. 17, 1886.

Friend M., the case you mention is rather unusual. I should still be inclined to think there was some sort of a bee in the hive, which the bees recognized and treated as a queen. This would account for their refusal to accept queens, or to build queen-cells; but I may be mistaken in the matter. The most important fact brought out by the above report is, that this quart or three pints of bees lived from August till April. As these were all old bees, and *quite old* at that, we should like to have you tell us if there was any difficulty about their feeding their larvæ and taking up the general work of brood-rearing.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER V.

SPRING WORK.

AT length the snow melted away from around the parsonage, and every thing indicated the approach of spring. Mr. Meek, as he conducted family worship one morning, read from the second chapter of the Song of Solomon: "Lo, the winter is past, the rain is over and gone; the flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in our land; the fig-tree putteth forth her green figs, and the vines with the tender grapes give a good smell." He remarked, "Surely these words describe the pleasant spring-time. How grateful we should be that this pleasant, happy season is now at hand!"

After they had arisen from kneeling in prayer around the family altar, Tommy said, "If spring is at hand, our bees ought to be out to enjoy it."

His father replied, "We will set them out to-day, providing it proves as fine a day as it now promises." The day was fully as fine as could have been expected, and at ten o'clock Mr. Meek went to the cellar, lifted the nail-keg hive, and, gently carrying it into the yard, placed it where it had stood in the fall. After being so long imprisoned in darkness, the bees enjoyed their flight very much, and filled the air as though swarming.

Mr. Meek judged from the weight of the hive that more feeding would be necessary. The children again put their spare cash together and bought fifty cents' worth of sugar, which was made into a syrup, and fed in the same manner as in the fall, only more sparingly, with a view to stimulate brood-rearing. The bees were safely through the winter, and preparation might now be made for the summer's work.

One day the children accompanied their father to town, and went with him to the shop of Mr. Woods, the man who made bee-hives. He showed them samples of the different hives made by him. They were all well made, and nicely painted. Reading Mr. Langstroth's book led the the children to select the Langstroth hive. These he sold at two dollars each, if sold singly; but he said if they would take five they could have them for eight dollars. Their father advised them to purchase five, saying, if not all needed that year they would be needed some other year. With each hive he was to furnish a rack for holding section boxes.

After their return home their father directed them to clean out a small out-building, and use it as a storeroom for bee-fixtures, except things likely to be injured by rats or mice; such he advised them to place in the family storeroom where they would be safe. The children felt very proud of the nice new hives.

While all were absent at town that day, except Mrs. Meek, a man who made a business of cutting stencils for marking names on grain-sacks and the like, called at the parsonage to see if they wanted any thing of that kind. Mrs. Meek ordered from him a stencil for marking bee-hives, that would mark the name of the firm, "Jane Meek & Brother," in large letters; also a brush and bottle of marking-paint. When these were delivered, a few days afterward, and presented by her to the firm, Master Tommy indulged in quite a dance on one foot clapping his hands, and crying out, "Good! good!"

He and Jane soon had the name of the firm marked on the front of each cap. If Tommy had been permitted to have his way, it would have been marked all over the hives. The white hives, nicely painted with the name of the firm on the front of the caps in large black letters, looked finely. Mr. Meek had procured a price list of supplies kept by a dealer in a neighboring town, which he and the children had been looking over, and considering what they should order. At length the following order was made out and sent to the dealer: 500 sections, 5¼ inches by 6¼; one smoker; 50 tin separators to suit sections; 8 pounds of thin comb foundation, cut to fit sections.

All these arrived in due time, and were placed in the out-building, except the foundation, which was carefully laid away in the family storeroom. The neat sections, being all in one piece, with grooves for the corners, and the ends nicely dovetailed, were a marvel to the children, who immediately set to work to put them together. There were sections advertised of various sizes; but their reason for ordering that size was because the racks that came with the hives were made to fit that size.

In the spring they talked of having the bees transferred from the nail-keg into one of the new hives; but as Mr. Meek had never seen that work done, he advised them to let them alone, at least until after the swarming season. No honey-box was placed on the nail-keg, lest it might tend to delay the swarm. The whole family, but especially Jane and Tommy, were anxiously looking for the swarm to come off.

One day both Jane and Tommy rushed into their father's study, and hurried him away to look at the large bees flying around the hive. He pronounced them drones, and caught one or two for the children to examine, and see that they had no stings. He said it indicated that the bees were thinking of swarming. The children therefore watched the hive more closely.

One day the children were at work in the garden, when Tommy started to the house for the spade. He had to pass near the hive, and Jane was surprised to see him stop a moment and then begin a dance upon one foot, clapping his hands, and crying, "Good! good!" She called to him to know what was the matter, when he shouted at the top of his voice, "The bees are swarming! the bees are swarming!"

She soon stood by his side, and, sure enough, the bees were pouring out of the old keg in a perfect stream. As Tommy expressed it, they were tumbling out, heels over head. Jane thought of the new hives, and said, as she started for the out-house, "A hive! a hive!" and before their father or mother reached the yard they were back with the hive.

The children had never seen bees swarming before, and became greatly excited as they gazed upon the thousands of bees circling through the air. When they began to cluster on the low limb of an evergreen, Tommy seemed to lose all the sense he ever possessed; he danced first on one foot, then on the other, clapped his hands and threw his hat high into the air. He evidently hardly knew whether he was on foot or on horseback.

Their father said he would hive this swarm, to show them how to do it. He took a large cloth, and spread it on the ground beneath the tree. At one edge of it he placed the hive, the portico resting upon the cloth. He said they could be hived without the cloth, but he considered it a help. As the bees marched along over it to the hive they would not be hindered by the grass or weeds; and also by raising the edges, the bees could be shaken toward the hive if they marched too slowly. He then opened the hive to see that all was right inside, and that the boards above the frames were so fixed that no bees could enter the cap. He then asked for the dish-pan, which Jane brought. This he held beneath the cluster, while Jane and Tommy shook the limb vigorously, causing all the bees to drop into the pan. These he emptied on the cloth before the entrance of the new hive, and, breaking a twig from a tree, guided them as they marched in. The children came up close, and eagerly watched the proceedings. Fortunately their father caught sight of the queen as they marched in, and pointed her out to the children, who obtained a good view of her. Jane asked if she might take her up in her hands, and look at her more closely. Her father said, "No. A queen at this season is very precious, and; being full of eggs, is easily injured; and as you do not understand how to handle her without hurting her you had better let her alone."

By this time quite a bunch of bees had collected on the branch where the swarm had clustered. Mr. Meek had Jane hold the pan while Tommy shook down the bees, which she then emptied before the hive, as her father had done with the other panful. When these had entered, the hive was removed to the place where it was to stand. Mr. Meek elevated the back end of the hive, making it condsiderably higher than the front. When the children asked why he did so, he replied that M. Quinby's book tells us that if our young swarms are so placed, the bees will be more likely to build straight combs in the frames than if placed level; "and," said he, "we want straight combs."

Strange to say, that amidst all this excitement and flying of bees, not one person was stung, yet none wore any protection. Mr. Meek said the children ought to have some kind of protection for their faces, and explained to Jane how she could make one out of any old hat, by sewing a curtain to its rim with a piece of wire net in front, through which to see. To keep the bees from crawling under the curtain, it could either be tied around the neck or else have a jacket buttoned over it. She said she would make such a bee-hat for both herself and Tommy that afternoon.

To be continued June 1.

THE SOLAR WAX-EXTRACTOR.

FRIEND GREEN MAKES A CORRECTION.

YOUR cut of the solar wax-extractor is entitled, "Solar wax-extractor as devised by friend Green." I object. If you will examine the one I sent you, you will see that the cake of wax can be easily taken out of the wax-pan, as all of the sides are sloping, and there are no projections. With a square pan having projections inside, such as you illustrate, the cake of wax would have to be broken to get it out. Moreover, a part of the comb to be melted will be shaded by the straight sides of the pan, which will prevent satisfactory work. Of course, this could be prevented by keeping the comb away from the outer edges of the tray. I am inclined to think that the difference in results between the extractor I sent you and yours with only one thickness of glass was due to the unusual thickness of the glass I used, it being twice the ordinary thickness. **J. A. GREEN.**

Dayton, Ill., April 8, 1886.

Thank you, friend Green, for calling our attention to this matter. By some means or other the dripping-pan was made with perpendicular sides. We have notified the foreman of the tin-room, and the dripping-pan will hereafter be made with sloping sides.

LOCATION OF AN APIARY.

FRIEND FRANCE CONSIDERS THE VERY GREAT IMPORTANCE OF THE MATTER, BACKED BY LARGE EXPERIENCE.

AS I have had a great many questions sent me, I will try to answer them. In the location of an apiary, I am satisfied that a great deal of our success or ill success comes. I have had a good deal of experience in that line. I can count up ten locations in our neighborhood where we have kept bees within the last 15 years, which we have abandoned, and we are now using six locations. Why did we move? We got one location too near a public road; travelers and horses got stung; that won't do. The want of a good windbreak in other locations has caused us to move, and we are again to move one yard this spring, for the reason that the timber is nearly all cut away, which formerly has been our windbreak. The place is on a dividing ridge, and will not do without a good windbreak. My home apiary is on high ground. when I came on the place there was plenty of good timber all around me; but it is all cut off, and we have put up a tight board fence eight feet high on the east, north, and west sides. This does very well, but it is not so good as high timber.

We have one apiary 4½ miles N. E. of us that just suits me. The location is in a valley, between two ridges about one-fourth of a mile from the top of one ridge to the top of the other. On the north ridge, and nearly down to the valley, is thick timber—timber on the west, timber on the northeast, open to the south and southeast. The bees are placed close up to the timber on the north and west; for pasture they have an abundance of white clover all around them, with basswood two miles away.

In the year 1884, that yard, 41 colonies, spring count, and 72 fall count, gave us 130½ lbs. surplus on an average. In the spring of 1885 we had 70 good strong colonies in that yard, having lost only 2 out of the 72, one of which was queenless, and died early in the winter. The other was the last colony we made, which failed to mature their first queen, and had to raise another; so they went into the winter weak—about one quart of old bees. They lived until spring, and then dwindled away.

Another yard of 74 colonies, fall count, went down to 54—a loss of 20 colonies. Location had a great deal to do in making the difference in wintering those two yards. The last-named yard was in a valley very much like the other, as far as the make-up of the ground goes; but the apiary was on the north side, near the top of the ridge, with no windbreak on the north. There was timber on the east, close to the bees, and timber south near to the bees. A house and big barn and some timber were on the west, with a few trees among the bees. Now, had this yard been open to the east and south, and had there been a good windbreak north of them, they would have been all right; but as it was, there was too much shade, which kept the hives too damp and cold in the spring. The bees would come out, become chilled, and dwindle badly. We moved this apiary last June four miles to a better-protected location.

I am sure we can make bee-keeping a success, and winter our bees outdoors on their summer stands in this part of Wisconsin. If a man is going to commence bee-keeping, the first thing is pasture for his bees, and here the main dependence is white clover and basswood. Then if he is going to winter outdoors he must have good windbreaks—timber or high bluffs on the north and west sides. Locate the apiary on the north side of a valley, facing the south, and do not have shade-trees in the apiary. They keep the hives too moist. Give the apiary the benefit of the morning sun, to dry off the dew and warm them up. Look out for an easy way to get out of the apiary with the honey. Don't put the bees too near the dwelling-house or barn or stock-yard, nor near a public road, nor where the bees will be liable to sting folks about their work, or when traveling along the road. Don't locate with a meddlesome family, nor among them. It will cause no end of trouble and vexation. Locate with a good respectable family, and pay them well for their trouble. Keep on hand a few extra clean veils for the use of visitors; and when they come, treat them with due attention, and answer all their questions carefully. Don't be afraid you will teach somebody something.

DO WE OWN THE LAND WHERE OUR APIARIES ARE AWAY FROM HOME?

No. All the land we own is where we live and keep our home apiary. Other places we pay rent for, and we pay from $10.00 to $15.00 a year for each yard. We aim to pay about 25 to 30 cents a colony, spring count. We have never paid over 30, and we have no trouble in getting places at this price. The family have nothing to do with the bees. We do all the work; we visit each yard in the honey season once a week or ten days. If we attend to them in just a week, with no longer intervals, there will be no swarms out. We keep the queens' wings clipped, so in case they do swarm when we are away there are no swarms lost. The bees go back, and usually the queen gets back also. But in case the queen should be lost the last of June or first of July, or in any part of July for that matter, it is no loss at all as far as the honey crop is concerned. We never get any surplus honey after the 22d of July. Two years we have ceased our work on the 12th of July. Now, if we should lose a queen, say the 25th of June, her eggs keep on hatching until about the 15th of July. Those last-hatched bees won't get out to gather any honey until the harvest is over. I think we could get more honey with the queens taken away the 25th to the 30th of June than we could to have them remain, because then there would be an interval, right in the height of the honey-harvest, when there would not be a herd of hungry larvæ to feed. The bees will raise a young queen, so we shall have a young queen in the place of an old one to winter, and the young queen has plenty of time to raise bees to winter. The bees will work just as well without a queen as they will with one, providing they have material out of which to raise one. If I had a colony of bees that had the swarming fever, I would take away their queen, and that would cure them at once. But, of course, we should have to attend to cutting out queen-cells after that.

I think I have now answered all the questions I have on hand. E. FRANCE.

Plateville, Wis., Mar. 27, 1886.

Friend F., we are very much obliged indeed for the very valuable facts you give us. Within a mile of where I am now writing is a deep gully, surrounded on the north and west by hills covered with tall forest-trees. In this gully is a flat spot and a beautiful little spring; and for years I have wanted to locate an apiary just on that spot. As it is, however, half a mile from any wagon-road there would be some difficulty in getting to and from it. But your experience corroborates what I have long felt—that it would pay us well to select such spots for our bee-hives. On bleak cold days, when icicles are hanging everywhere, we find a pleasant summer temperature in protected nooks like these. Another trouble with my pet location is, there is not a house within half a mile. I have been thinking I should like to move some bees there and camp out during clover and linden bloom, and I really believe it would pay.

DETERMINATION OF SEX IN BEES.

AN INTERESTING CASE SHOWING THAT THE SIZE OF THE CELL PLAYS NO PART IN THE MATTER.

HAVING read with interest several articles in GLEANINGS on the subject of sex of the bee as determined by the queen, I will add an item which seems to me of some interest as bearing on the question.

Last summer I had a colony of blacks that became queenless. A comb of brood, with several queen cells, was given. These were soon all destroyed except two, and one of these was open at the side; but the larva appeared uninjured. I pressed the opening together closely, returned the frame, and smoked the bees *freely*. No further effort was made to destroy the cells. They were not again looked to till the young queen had been laying for several days. I then found part of one comb filled with drone-larvæ, as afterward proved to be the case. These, apparently, she produced first. I also found about two frames filled with worker-eggs, evidently laid afterward. These last were all in good shape, except that very few were in the center of bottom, but on the side of the cell, or near the side and on the base of the cell. The queen was looked up, and was found to be deformed. What seemed to be a scar, when seen under a magnifying power of four or five diameters, was found upon the upper right-hand surface of the abdomen, beginning in the first ring, and extending backward and slightly forward across the second and third rings, and terminating near the middle of the fourth in a sort of knotty appearance, and with a slight protuberance. The extremity of the abdomen was drawn to the right so much as to be nearly on a line with the right side of the abdomen. The whole of the abdomen had the appearance of being stretched in length, but was very small, no part being larger than a good-sized oat straw, seemingly because the injury, or whatever it was, caused the mark, or scar, described. This queen produced worker-eggs and also a few drones in the few drone-cells to be found in the hive, putting each in its proper place, except the drones at first, though it was impossible that the abdomen should be compressed by the cell, or even touched at the same time by the opposite sides of the smallest worker-cell.

Now, I do not *know* that this queen came from the injured cell, but I believe she did, and that the mark described was caused by the torn edge of the cell pressed in upon the larva by my unskillful attempt to repair the cell, which, while not rupturing the skin of the larva, did, by pressure, while the larva was in process of development, cause the scar described. This queen produced both drone and worker eggs, according to the cell being occupied (except at first as stated above), and that without any pressure of the cell in any case, the diameter of the abdomen not exceeding two-thirds that of the smallest cell. Now, if this queen could produce fertile eggs without the much-talked-of pressure of cell, is not the conclusion natural and reasonable that others or all can also? My own experiments and observation have satisfied me that drones may be, and, in *rare cases*, are, produced from worker-eggs; but that it is unusual, and possible only when done almost immediately after the deposit of the egg by the queen. 8—L. T. AYERS—120.

Farina, Fayette Co., Ill.

Friend A., you have given us a valuable fact. I have several times patched up queen-cells when they were torn open, and had them hatch out good queens. Sometimes the queens will hatch out all right, without being patched up, if the bees take a notion to let them remain that way. It is quite common for young queens to produce only drone-eggs at first, and worker-eggs in proper order afterward.

HOW TO CREATE A MARKET FOR HONEY.

SHALL WE ADVERTISE AS DO PATENT-MEDICINE MEN?

THE great cry of honey-producers is, "Sell all that you can at home before shipping to the large markets;" but, now, what shall we do to start this home market? Some say, "Advertise liberally in your local papers;" but what is the use of advertising an article that the people do not know that they want or need? Some say, "Write up pieces, and have them inserted in your home papers;" but you take the honey-producers through the country and how many could you find who would or could write any thing that would have any weight with the public? Then what can we do to educate the people, and counteract such lies as Wiley's or Wells'? There are but few whom we can reach individually; and then, unless they are personal acquaintances, or know your reputation well enough to believe you, you could not convince them that you had a genuine article unless you could out-talk all the book-agents and lightning-rod peddlers in the country; and who can blame them when, a short time ago, they could hardly pick up a paper but had something in it about adulterated honey, or something as absurd?

Now, is there not some way that we can educate them to the use of honey? Can we not copy after the patent-medicine men, and keep honey before the public all the time? I find that the most of the papers throughout the country are using short stereotyped pieces to fill out their papers, especially when they have job work which pays them better, and that they would gladly use any such thing as would interest and instruct their readers. Then why can't we have such pieces? And, friend Root, I think you are just the one to get them up for us. You could offer prizes for short essays on honey, print them in GLEANINGS, stereotype, and have them ready to scatter broadcast through the country; and, as nearly as I can learn, the price of two or three pounds of honey would give a short piece each week for the people to think about; and if it seemed to have no object but to fill up the papers, they would have more confidence in it than any advertisement that you could get up; and then with a short local, telling them where they could get it, and by having it in a neat and attractive form at the leading groceries, it could be made a financial success to all parties. What we want is short pieces to make honey-consumers, not honey-producers. Let us hear from you, so that we can work up this or some better plan to help us dispose of the coming harvest that we hope to receive.

Bangor, Mich., April 9, 1886. J. J. PENOYER.

No doubt, friend P., much could be done to help the sale of honey in the way you propose, and considerable is being done in that way. In reading our agricultural exchanges, I have been pleased of late to note a considerable space being given to bee and honey interests, and I am glad to see the sensational stories about artificial eggs and artificial comb honey giving place to sound sense. One trouble about advertising honey to the extent that patent medicines are advertised is, that there is not profit enough in honey. There is often not a difference of two cents a pound between wholesale and retail; but with patent medicines, an article that costs only 20 or 25 cts. per bottle, every thing included, sells for from $1.00 to $1.50 per bottle. With such a margin, you see they can afford to fill the papers with flaming advertisements. It is very rare that staple food products afford any great margin.

FORCING BEES INTO SECTIONS.

J. E. POND'S METHOD.

ONE of the troubles existing in the matter of securing comb honey consists in the reluctance of the bees at times to occupy the sections early; the consequence of their not doing so, being excessive swarming. Many plans have been adopted to overcome this reluctance, and many theories have been urged as to its cause. None of them, in my opinion, have hit it just right as yet; at least, no one as yet succeeds to the extent that may be fairly called success. The exponents of the reversible plan have the floor at present in theory; in practice, however, this method is so cumbersome and unwieldy, whether frames are reversed singly or aggregately by reversing the hive, that it will hardly supersede the methods most commonly in vogue. For the last two or three years I have been experimenting somewhat in this direction with results that so far are quite satisfactory to myself, both in the results attained and the labor involved. It is a well-known fact, that bees deposit their surplus most largely above the brood, and the natural reason for this is at once apparent. It is a well-known fact, too, that store combs are always (when room is given) built deeper than those used for brood, and equally true that brood is not reared in combs that are more than ⅞ inch wide. The logical deduction from all this is, that when the frames are spaced at such a width apart that the comb can be built out to a greater than the regular width such combs will be used for storage, and, as a consequence, the sections will not be occupied for that purpose, while any room therefore remains in the brood-chamber. It also follows, that if the comb is spaced only a bee-space apart, it will not likely be used for storage, but will be used for brood. These propositions were so self-evidently true to myself, that I have given the matter a fair test during the last three years, and these predicated results followed in every instance.

I tried reversing-combs; and while I found them fairly successful, I also found that it required too much time and labor, and that closer watching was required than I was able to give. I then adopted the plan of forcing each colony to full size as early as possible; and on the near approach of the honey season I extracted the combs in brood-chamber and shaved them down to exactly ⅞ inch in width; then I replaced the frames in the brood-chamber just a bee-space apart, using dummies with which to fill empty space. By this plan I have found the brood-chamber was used for brood alone in the early season, and that the bees would occupy the sections as soon as they were placed upon the frames; this I found, also, was a labor-saving operation, and a great saving in time also. I am aware that the theory of the reversionists is, that all surplus should be forced into sections, and the winter stores supplied by feeding. This is theory to a great extent, and as yet requires verification by actual tests, not by one or two in their own localities, but by the masses generally throughout the whole country. With my method, by removing a frame or two at the close of the honey season, and widening the spaces between those remaining, the same state of things will, of course, result. The method above indicated is not only practicable and practical theoretically, but has been tested, as I have indicated, to an extent sufficient to positively assure me that it is worthy of being tested on a large scale. I do not advise any great or expensive changes, and in order to try this plan none such are required; for while I myself use the L. hive, my method can be used with any other that contains frames ⅞ inch wide, and no expense whatever need be made in adopting it. Whether or not this method may be deemed practicable by others, I am so well pleased with it that I shall continue its use in working for comb honey, knowing that equally good results can be obtained by so doing as by reversing either frames or hives, and with less trouble and expense.

Foxboro, Mass., April, 1886. J. E. Pond, Jr.

Friend P., while your plan may not have been followed up exactly as you have it, it has been touched upon from time to time during past years. Where you move the combs up to only a bee-space apart, it is necessary that they should be very flat and straight, or bees will be imprisoned in their cells, or the cells will be closed up so that even the nurse-bees have no access. On this account I would keep the combs occupying the same relative places to each other as much as possible when working in that way.

BEES IN TEXAS

That Build Their Nests to Limbs of Trees, in the Form of a Sphere.

DO BLACKS AND HYBRIDS EVER BUILD THEIR COMBS TO LIMBS OF TREES LIKE A HORNET'S NEST?

ON page 829, Dec. 1, 1885, Mr. McCamant recites an incident related by Rev. F. B. Ticknor, of finding in Western Texas a colony of bees styled "Mexican bees." Had the Rev. Mr. Ticknor carefully investigated those bees, I think he would have found them to have been only common blacks or hybrids, or stray Italian bees. I found a colony of common black bees last year, clustered on the end of a broken limb, about 30 feet high. The comb, as Mr. T. says, was somewhat shaped, or resembles, a hornet's nest. First a central straight comb about 14 inches long by 12 wide under the limb, which was about two inches in diameter; two others, one on either side, about 12 long by 10 inches wide, attached to the limb, arching outward, and held in position by a comb-brace about 3½ inches long by 1½ thick, the cell walls being fully four times as thick as the ordinary comb-cells were; the partition wall of this comb-brace was about ⅛ inch thick. Then on either side were two more pairs of arched combs with braces as above described, the first pair being about 9 inches long by 8 wide; the last pair was about 6½ inches long by 4 wide. They were all arched over and attached to their fellows nearly their whole length. The free edges indicated that they had been started at the comb-brace, and had been arched over for additional support. There were no cells on the arched part of the combs above until they became about vertical, and then but very shallow cells on the outside of the two smaller combs. Under the arch, however, the cells were complete over the entire combs. The brood-nest was below the comb-brace, and occupied most of the lower part of the three central combs. The inside of the fourth and fifth combs, except about an inch at the bottom of all the combs, was filled with honey, the combs all tapered to a thin edge at the bottom and the free extremities. The whole mass could very easily be imagined to resemble a hornet's nest.

Did the bees reason, so to speak, that the arching combs would protect the brood and cluster from rain? or did they arch the combs over to get additional support? I think the latter at least the main reason for arching over. I have seen bees clustered, and combs built on limbs, in Indiana; but I never saw such swarms build combs in a globular form there. There is nothing in the above but what obtains where bees build natural combs in a hive, except the arching and comb-braces. The comb-brace was evidently built heavy to prevent the comb from encroaching on its fellow, and was necessary as a starter for the next comb. The globular form of the comb might lead to the belief of a distinct race of bees; aside from that, I see nothing to warrant such an opinion, and I think investigation will prove my conclusion correct; i. e., they are blacks or hybrids. I should be proud to believe America to be the home of a race of bees *better than the best;* but if such is to be the case, it will be by selecting from the best of other lands, and rendering them homogeneous, and so raising up a Saul in Israel, or a strain, head and shoulders above all others. E. S. ARWINE.

Patterson, Texas.

MORE FACTS TO SHOW THAT BEES NEED SALT.

BEES CONTROLLING THE SEX OF THE EGG.

ON page 178 I saw an article from W. H. Green, entitled, "Salt a Necessary Element for Bees." His experience only relates what is an *absolute* fact, that salt is one thing necessary in making up the food of the bees. If any one has not tried it he will be surprised to see how eager they are for salt, when put in proper shape for them to get at it handy. While keeping bees in California, where there was plenty of foul brood all around us, I used to prepare all the drinking-water my bees used, and the water was medicated with salt, salicylic acid, and borax, but it was made pretty salt. I gave it to them in shallow dishes, with a loose piece of sack thrown over it. The sack was allowed to fall down in the center, leaving the edges hanging over the dish. The bees would suck the water through the sack, and take every drop of the medicated water from the dish. This water was given to them every morning, as regular as the morning came. I used it as a preventive of foul brood. I took the ground that the salt and salicylic acid were both disinfectants; and as the bees fed the young larvæ the water I prepared, it must of necessity benefit them; that is, if there were any germs of foul brood in the combs.

Now, friend Root, I have been much interested in the articles of Chas. Dadant and Prof. Cook on "Egg-laying of Queens." While I have no disposition to open a controversy with two such able correspondents as the above, yet they will allow me to say that I think there is much to learn about the egg-laying of queens. Under some circumstances their ways are past finding out. Now, what old observing bee-keeper has not seen queens, drones, and workers, all reared from what we *suppose* to be the same eggs? Take a full sheet of worker-comb (not a cell of drone-comb in it) from a prosperous colony, before the eggs are hatched, and place it in a queenless colony that has no brood of any kind and sometimes they will rear queens, drones, and workers from this sheet of eggs, that, had it been left in the parent colony, would in all probability have been every one worker-bees. I have had them cut down the worker-cells to the septum, build drone-cells, and rear as fine-looking drones as I ever saw reared under any circumstances. Can you tell how they manage it? I give it up, and am willing to let some one else try. Will Prof. Cook or Mr. Dadant give his views? It is light that I am after, not criticism. For the sake of courtesy, I might wish that I could agree with either of the gentlemen's views upon the subject; but my observation has led me to the belief that, in the instance where young queens lay drone-eggs before they begin laying worker-eggs, is because they had not yet met the drone; and if I say that I am inclined to say as you do, that the bees have the power to determine the sex, I shall not be accused of departing from the ground I have taken before. A. W. OSBURN.

Havana, Cuba, March 15, 1886.

This subject as to whether the bees can convert worker-eggs into drones has been discussed a good deal already. At the convention at Detroit last fall it came up, and some of our wisest heads discussed it; but as a rule I think they seemed to be a good deal incredulous. It seems to me as though brood that would have ordinarily produced worker-brood is often converted into drone-brood when put into a queenless hive. We want careful experiments in the matter.

MOVING BEES IN MID-WINTER.

WINTERED WITHOUT LOSS.

THERE is no doubt but that perfect quiet is the best, when once the colony has compactly custered, and winter has set in in earnest. But circumstances *may* be such, sometimes, that some unforeseen emergency may occur when we are almost compelled to handle a colony in mid-winter. Then the query naturally comes up, Can we do so without endangering the life of the swarm? I have tested this matter more thoroughly the past winter than I ever did before. I had purchased 7 colonies long after my own had been snugly packed away in the cellar. He had left them out on their summer stands, without any extra packing or care. On the 13th of Jan., when the thermometer was 10° above zero, I took a sled and went twelve miles after the bees, in a very deep snow. This was only four days after the noted four-days' blizzard, during which time the thermometer had been, much of the time, down to 15° and 20° below zero. Of course the bees became very much aroused by the time I got home, and it was with much misgiving that I set them in the cellar. I watched them closely at intervals during the remainder of the winter, and was pleased to see that, in a day or two, they had settled down to that peaceful quiescent state, so satisfactory to the apiarist. Two days ago they were put on their summer stands, and all came out bright and dry, and strong in bees and stores.

My 61 colonies were set in a house-cellar the 5th of Dec., and the 7 colonies were set in the 13th of Jan., as before mentioned. They *all* came out, not only *alive*, but bright and clean, with only half a dozen or so with entrances a little specked up with dysentery. They have been busily engaged bringing in pollen and some honey from soft maple.

Our cellar is quite dry, and well banked up with slough hay. They had no ventilation, or, rather, the cellar had no ventilation, except what was afforded from passing in and out once or twice a day form an outside door. The bees were tiered up four deep, as compactly as possible, with full-width entrances open, and each cover slipped forward, so as to let the bees pass in and out at will, at each end of the top of the hives—no quilt, no chaff, or absorbents of any kind. I hung a good thermometer over the hives, and kept the temperature at 45° to 50° all winter, by firing pretty heavily during very cold weather, in a sitting-room over the bees. We kept potatoes, apples, milk, canned fruit, etc., in the cellar; and, worst of all, about 100 rats, more or less, took up their abode in the cellar. But I soon fixed them with poison.

You ask if I advocate this kind of cellar for bees. No: I have a model bee-cave in construction (mentally) with circular cement brick for arching overhead, and with tile sub-earth ventilators, etc.; and so confident do I feel of successful wintering, provided they have feed late, and have good stores, that I would not wish to give any great sum to have them insured to winter over. D. E. **Brubaker.**

Maxwell, Story Co., Ia., Apr. 9, 1886.

Friend B., although you wintered your bees safely that were moved during a low temperature, I do not think it would be safe to say that we can do it as a rule. In our back volumes, several cases have been noted where bees undisturbed wintered nicely, while those moved in the middle of the winter, in much the same way you moved yours, all died with the dysentery, showing conclusively, it would seem, that disturbance was the cause of the mortality. There is something very complex and perplexing in this whole matter of wintering bees, and the results of the experiments are so very conflicting that it is a very difficult matter indeed to decide *positively* on any thing.

AN A B C SCHOLAR'S SUCCESS.

WINTERING WITH PROTECTED, CONTRASTED WITH UNPROTECTED HIVES.

IN the fall of 1884, Frank S. Ledyard, who has been one of your patrons, sold off all his bees at a public sale. As we had been without bees for several years, I concluded to purchase one colony and try *my* hand as a bee-man. I therefore bought his best swarm, which were pure Italians, paying him $7.00 for it. Father also bought a weaker swarm for $4.00. Mr. L. also had a very weak colony which he did not sell. I got him to put our three colonies into winter quarters, which he did by placing a rough box around each hive, leaving a space of about six inches, to be filled with dry planer-shavings. An empty hive was also placed upon the lower story, which was also nearly filled with shavings. After placing the lid on top, and a roof over all, they were ready for the winter. Now, everybody who knows any thing about bees, and the winter of 1884-'5, knows that it was a "stunner" for bees. This section of country never had such a mortality in the apiaries. One of my nearest neighbors, Mr. R. B. Robbins, who has also been one of your contributors and patrons, lost his entire stock, and *he* claimed to have a *hardy* strain of bees. Well, when spring came, father discovered that his swarm must be interred in the same graveyard as the *hardy* strain, while Mr. L.'s and mine remained to gather the honey.

About this time I received a copy of the A B C book, and began reading it carefully. My swarm came out very strong and bright in the spring. On the fourth of June I took out one card of brood and formed a nucleus for father, and made two starters of the remainder, each having four cards of brood and comb. I added empty combs to each as was needed, until each was full again. The one that had the queen, built up very fast, while the other was more backward. I soon discovered that they were rearing queens, and in a short time had 17 cells nicely capped. Just before they hatched out I removed all but one or two, and placed some in wire cages on top of the frames to hatch out, which they did very nicely, and were fed by the bees from below. In about two weeks from the time I divided the swarm, I took two cards of brood from the colony having the queen, adding several empty combs, and placed them in a hive where the old colony stood, moving the former a little to one side. I also gave them a virgin queen. It was surprising to see how fast the young colony built up. The old hive was nearly destitute of its workers for a few days, while the young hive was just booming. In five days they threw out a swarm which returned; the next day they did the same thing. I couldn't think what was the matter. When they came out the third time my brother hived them and gave them one of my caged virgin queens, which they at once accepted and settled down to business. I afterward concluded that the reason they persisted so in swarming was because they were too much crowded, as I had placed division-boards in the hive, having only five combs. Do you think I was right?

The nucleus that I formed for father rapidly became a strong colony, and in the latter part of July I took several cards of brood from it and formed another for him, which made rather slow progress during the season.

The season for honey in this locality was just moderate. The white clover honey was only a medium yield, but a very fine quality. The basswood was unusually full of bloom. I heard men of experience say that the flow at no time was very heavy, but the bloom continued much longer than usual, so that an average yield was received. My bees obtained quite a supply from the buckwheat, but the greater part was obtained from the white-clover and basswood.

Last fall I went into winter quarters with six colonies of my own, father having two. I packed them the same as the previous winter. Besides giving them all plenty of honey for winter stores, I obtained about 30 lbs. of comb, and 50 lbs. of extracted honey, which commanded a price of 10 and 15 cents per lb. M. B. **Simon.**

Bloomdale, Ohio.

COREOPSIS HONEY.

THE FLORA OF FARINA, ILL.

THERE are some peculiarities respecting the honey resources in this locality that might interest the readers of Gleanings. I have been keeping bees for the past 16 years in this place, and have yet to see the first pound of surplus honey gathered from clover or basswood in this locality. Until the summer of 1882, I usually had to feed my bees in June to prevent their starving. By the first week in July they would usually become self-supporting, getting honey enough to live on, from plants of the mint family principally.

After the great drought of 1881, which killed out much of the grass in road-sides and pastures white clover (which had not been hindered from perfecting its seed) came in quite strong, but yet not enough for any surplus, nor enough to induce much swarming. Near the timber, bees get plum and crabapple and other forest bloom, and build up strong earlier than on the prairie. But that is not very important, unless one wishes to sell bees by the pound, since we rarely get any surplus before August, unless honey-dew puts in an appearance, which it sometimes does in June. Early in August the bees usually begin to get a little surplus. By the middle of the month they are frequently getting a fair yield from some of the larger species of the smartweed family.

Our main dependence, however, is *Coreopsis Aristosa*, usually, though erroneously, called Spanish needle. It begins to secrete nectar about the 27th of Aug., and lasts 15 to 17 days. It grows on dry land as well as wet. Many of the stubble-fields appear like a solid mass of yellow bloom. There are usually some hundreds of acres of coreopsis bloom within range of my bees.

About the only causes for failure to get a good yield of honey from coreopsis are, either a severe drought, or weather so cool as to prevent the bees from working. During the past 16 years we have not had a single season in which our bees failed to get abundant winter stores, though we have had two seasons in which they failed to get any surplus to speak of. Once the failure was due to cold weather which prevailed during the coreopsis bloom, in the year 1879. The second failure was during the severe drought of 1881. We have had other seasons when the yield was materially diminished by very cool or very dry weather. In fact, I believe our honey-crop this year was shortened one-half by the cold weather that prevailed in August and September.

The honey gathered from coreopsis is thick, weighing 12 lbs. to the gallon. It has a beautiful amber color, has a pleasant aromatic flavor, and does not leave any rank or unpleasant taste in the mouth. I have never known it to become sour, or foam up, as some other grades often do when extracted too soon. It is very slow to granulate, usually remaining liquid until near the close of winter. Its thick and non-souring qualities make it a good winter feed for bees. My winter losses have been light, though kept on their summer stands, last winter being my poorest record, with a loss of only ten per cent. Bees do not build comb or draw out foundation as readily when gathering this thick coreopsis honey as when working on the thinner smartweed or clover honey. Bees show very little desire to swarm while working upon it; and since our honey-supply before that is usually too scanty to induce swarming, we get along with very little natural increase. In fact, during the past two years, without trying to repress swarming, I don't think I have had more than six natural swarms, and yet my honey-crop for that time has amounted to 18,000 lbs. This coreopsis, while so plentiful here, seems to abound only in limited areas.

To make this a good honey locality, we need clover in addition to our present resources. I think this want can be best met by cultivating alsike clover in our meadows and pastures.

16—T. P. ANDREWS, 245.

Farina, Fayette Co., Ill., Dec., 1885.

We have had quite a quantity of the honey mentioned above, but we always called it goldenrod honey. During a conversation with friend Andrews at New Orleans, I became convinced that what we call goldenrod honey is honey from the Spanish needle. The body and flavor are excellent; and when it is so thick that a saucerful may be turned over without spilling, it candies little or none at all. Its dark amber color seems to be the worst thing against it; but when it is better known and recognized, it seems to me the price ought to rank nearly if not quite equal to that of the best clover or basswood honey.

A LETTER FROM THE ISLAND OF CYPRUS.

GETTING SWARMS TO CLUSTER ON THE SAME SPOT DURING THE SEASON.

THE goods you forwarded to me arrived in good condition. I am glad to say that every thing was found nice; the foundation machine works beautifully.

Having derived much benefit from reports I read in GLEANINGS, I consider it is my duty to report a discovery I made in bringing down swarms during last season.

I started bee-keeping with ten stocks in February last. In May I had twelve swarms; before the swarming commenced I was told by a lady that swarms prefer clustering on orange or lemon trees to any other kind of tree. As I have only two of this kind of trees in my house, and as they are far in the other corner of the garden, I thought I could use the small branches and shoots thereof by cutting and hanging them on the branches of the pomegranate-trees which are near to the hives.

On the day I was expecting the first swarm I cut two shoots from the lemon-tree, each having about ten leaves; and having first rubbed the leaves to make the smell rise, I tied them on the pomegranate-tree, which was about four yards distant from the hive. About three hours after, the expected swarm came out and went right on the said lemon leaves; and after all the swarming bees were settled thereon, I slowly removed the cluster into a hive.

Some days after, I saw another hive was swarming. I immediately cut off a small branch of lemon-tree; while I was tying it on a tree, my servant brought to me another branch from the orange-tree, the leaves of which I rubbed, and secured it to the same tree, but about one yard from the former; then the half of the bees clustered on the lemon leaves and the other half on the orange-leaves, making two separate clusters of one swarm. I hived them separately in nucleus hives on combs, one partly filled with honey and pollen, the other empty. The bees from the one having the empty combs went to their parent hive because there was no queen with them. Three other swarms I caused to cluster on the lemon branches while I was holding them up for the bees. At the time when the other swarms were seen in the air, in my absence from the house, my servant caused them to go straight into the hives prepared for them, having thrown into the hives a few leaves of a lemon-tree.

I am sure I lost no swarm, and I hope I shall not lose any so long as I shall use such a bee-magnet. I think that orange-water, or lavender, used for toilet, will attract swarms to any place desired, the same as fresh leaves of orange or lemon trees do.

M. S. DERVISHIAN.

Larnaca, Cyprus, Feb. 5, 1886.

Thank you, friend D., for your kind report from your far-away apiary. In regard to the efficacy of orange or lemon trees, it may be that the peculiar scent of the leaves is attractive to the bees, in the same way in which the scent of the oil of anise seems to attract wild bees in bee-hunting. But after you have once succeeded in getting a swarm to cluster on one particular limb or branch, there is nothing particularly new in the fact that all subsequent swarms cluster on the same branch. The matter has often been discussed in our back volumes. It is quite common to have almost every swarm from an apiary cluster on the same spot, or on the same limb, that the first swarm of the season occupied. Especially is this the case after two or more have occupied the same tree or branch.

UPWARD VENTILATION.

EVERY RULE HAS ITS EXCEPTIONS IN BEE CULTURE.

FRIEND G. M. Doolittle, on page 266, argues against the necessity of confining the heat of bees to the hive by contracting the hive and restricting upward ventilation. Whether he does this simply for argument or not, I do not know; but as I have been a supporter of the opposition, and you have alluded to me as such, I wish to say a few more words on the subject.

Every rule has its exceptions, and there are but few rules in bee-keeping which may not be disregarded with impunity under certain conditions. Experience has convinced me that bees, to winter well under ordinary and average conditions, should be restricted to a small hive, well protected from the cold, and as nearly air-tight as possible, except at the entrance, which should be large. Do not understand me to say that bees will not winter well under other conditions. Some of the most successfully wintered colonies I have ever had were wintered in large hives with free upward ventilation. In my spring report, given on page 382 of July GLEANINGS for 1883, are these words: "One of the strongest swarms I have was wintered in a large chaff hive, with 12 frames below and 5 above, only partially covered with a piece of duck."

As I look back over the many experiments I have made in this line, and think of what I have learned from others, I can recall cases where colonies that have wintered well in large hives, with an abundance of ventilation, seemed to show an unusual degree of vigor and energy the next season. Whether this energy is the cause or result of their successful wintering, I do not know; but I am inclined to think it is the former. I have often thought it was because colonies in large hives are not apt to be subjected to the overhauling and disturbance of the brood-nest that is likely to fall to the lot of those in contracted hives.

I am not simply arguing in support of a theory, suppressing all facts I know that may seem to disprove that theory. It is the truth that I am seeking, and, if I find it, I care not what theories are overthrown.

I freely admit, that I have frequently been successful in wintering in large hives, and with free upward ventilation; but the ratio of loss has been so much greater in the colonies wintered by this method that I have come to the conclusions given in my article on page 42 of the present volume.

Oliver Foster hits the nail squarely upon the head on page 256. We never hear that "upper absorbents" are necessary in ventilating our homes and public buildings. The impurities of the air must be removed by ventilation and not by absorption, and it is generally agreed that the most satisfactory and economical systems of ventilation are those which provide for the escape of the contaminated air at the bottom of the apartment. It is true, that the impurities thrown off into the air by the respiratory organs and the excretory organs of the skin rise at first; but becoming chilled, they fall to the bottom. Moisture is far from being the only thing added to air by an animal living in it. The same principles apply to a bee-hive. Bees can not go into that hibernating condition assumed by many other insects, wherein they can endure the most extreme cold of winter in a state of complete torpor, requiring no food to nourish them or sustain animal heat. The inmates of the bee-hive must at all times maintain a certain temperature, and they must consume food in order to do this. If the whole of a colony of bees should be chilled into that benumbed and torpid condition which the outside bees of the cluster fall into during cold weather, it is very probable that they would never revive unless they were warmed up very soon by a change in the weather.

The interior of the hive, and particularly the interior of the cluster, is much warmer than the outside temperature. This heat must be maintained by the consumption of honey. The colder the hive, the more honey must be consumed, and the more the vital forces of the bees are wasted in digesting this honey. Economy of heat is economy of vital force. Small hives, closely sealed above, are most economical of heat; therefore, other conditions being equal, they are best adapted to the outdoor wintering of bees. J. A. GREEN.

Dayton, Ill., April 8, 1886.

FLORIDA.

NOT A LAND DISAGREEABLY COLD IN WINTER OR EXTREMELY HOT IN SUMMER.

I HAVE often felt a desire to express some of my heart-felt gratitude for the many bits of good counsel coming from you through GLEANINGS, which comes to me very regularly, and is read with untiring interest and pleasure. I always feel edified and strengthened after reading your lectures, and my heart and mind run out to my neighbors who take GLEANINGS, and I feel so glad that they have the benefit, too, of so good a lesson, besides the many good practical ideas that come to me through it from yourself, Ernest, and other good bee-men and bee-women. This is a great organ, and is calculated to do a great deal of good. I am glad to say I have never seen any thing in GLEANINGS, except Jay C. Ell's letter, taken from the Charlottesville *Chronicle*, which contained any thing disparaging to Florida; and I was sorry to see such an envious, exaggerated statement in as pure a work as I have always felt GLEANINGS to be; and as dearly as I love the editor of it, I can't help but feel a little disappointed to see such an unjust and exaggerated statement; and it seems that Mr. Griffin showed some Levite spirit too in the matter.

Mr. E. is what the many respectable, well-to-do Northern settlers here term one of the black sheep, which is very natural and common, as there are some in every flock. Such sift themselves out of here. It requires vim and judgment to succeed here as well as in many other places; and it seems that Florida must be a God-forsaken land, instead of a land blest with flowers, where even the thermometers will not indicate truth, much less interested land-agents that do their work by writing and talking. I do not approve of exaggerating, as no doubt some of the many land-agents of Florida do, for there are some black ones among them.

I approve of Mr. W. S. Hart's advice to those contemplating moving to Florida—come and see before pulling up your stakes where you are, unless you know some man or friend who has an honest purpose at heart, and has sound judgment, such as you can trust to advise in so important a matter as moving into a new country and climate, especially where a man has a family. There are a great many things to look out for besides land-agents. As for society, I feel it my duty to say that it is good. We have churches of nearly or quite all denominations. They are well attended in most parts. Schools, I can not say are good, though improving very rapidly.

Again, Mr. E. not only asserts that thermometers are worthless, but that the climate is a fraud. I do not know how that is; but I feel sure that God never made nor ordered any frauds in his kingdom. Now, because we had a cold snap the past winter that spoiled our oranges and vegetables, and killed some small seedlings, we must not denounce God's ruling and shut our eyes to keep from seeing his blessings and wisdom. I haven't a doubt but that the cold here last winter was a blessing instead of a fraud, if we could see through God's wisdom in sending it. As much as has been said about the cold and hot weather in Florida, I feel inclined to state just here a little of my experience in the twelve years that I have been in the State. I am neither a Floridian nor a land-agent.

The lowest that the thermometer had been until this winter, at my place, was 28°. This winter it got down to 22°, the highest 95°. Just here I have to differ with Mr. E. again. I have never felt it uncomfortably cold to work out of doors, nor so oppressively hot the hottest day as it was up north, where I was raised. The nights are delightful, both winter and summer.

A word in explanation to those who are not familiar with our situation and the causes of our pleasant summers. We are between the Gulf of Mexico and the Atlantic Ocean, consequently we are fanned by the gentle breezes from one or the other, almost every day during summer. This breeze reaches us here in Orange Co. from 7 to 9 o'clock A. M.

Now a word about the precious little busy bees. I have 28 colonies, all Italianized, one Bellinzona and one Carniolan. They are all gathering honey, and rearing brood nicely. Some of them have drones out this 8th of March.

Pardon me, friend R., for one question just here. Will yellow-jessamine honey kill young bees? Some of them seem to sicken and die from the first sip they take after they come out. This disease does not affect the Carniolans. I hope to give a more favorable report of my bees later in the season. JOHN S. WOMBLE.

Oviedo, Fla., March 8, 1886.

Friend W., may be the report from the *Chronicle* was a little severe; but there are certainly extremes both ways, and no one would want people to sell out and go to Florida, to be disappointed after getting there. No doubt the cold snap in Florida will prove to be a blessing if taken right; but the same rule will apply north as well as south. The writer of the article alluded to meant to say that thermometers didn't seem to him to be worth as much as a guide, as here in the North. I am glad you like your Southern home.—I do not think that the honey from the yellow jessamine ever kills bees at all; and Prof. Cook takes the liberty of doubting whether it ever kills anybody, if eaten in moderation.

REPORTS ENCOURAGING.

GOOD REPORT FROM AN A B C SCHOLAR IN NEW ZEALAND.

IN the month of January, 1883, a vagrant swarm of bees thought proper to cluster on a small tree near our house. I got an empty candle-box, and so hived my first swarm of bees. A few days after, neighbor K. called and tried to impress upon me the advantages of the modern system of bee-keeping, and, by way of proving his arguments to be correct, he gave me a Simplicity hive and ten frames, with fdn. starters, and transferred my bees for me. He also lent me your A B C and a great pile of GLEANINGS. This interested me so much that I resolved to try to raise honey sufficient for our own use. At the end of the next season I had 8 colonies of bees and 150 lbs. of honey. Another year passed away, when I had 16 colonies and 1500 lbs. of honey; and now, Mar. 1, 1886, I have 27 colonies of bees and 3200 lbs. of extracted honey. During this time I have not bought any bees, and have tried to keep them from increasing too much.

It seems to me that the most important question for the apiarists of this country will be, how to prevent swarming, and how to sell honey. There is no trouble in wintering bees. They can be left in their Simplicity hives on the summer stands, with a cushion over the mat; and if they have plenty of honey there is no fear of loss. We have no snow here, except on very high mountains, and very little frost — what we call hoar frost, in the night, making the ground white, and forming thin ice in small puddles; but, when freezing at night, the days are always very fine and warm. The summer time is not so extremely hot as with you. We think 80° warm weather; 92° in the shade is the highest I have known, and that does not often occur; and even then, mount Ruapheu, which is about 60 miles distant, can be plainly seen, towering up in the sky, its summit covered with perpetual snow.

I think I may say that your Simplicity hive and frame is the standard national hive of this country. Of course, we have some men who regard an *alteration* as an *improvement;* but these are very few GLEANINGS just suits me; its mixed character adds greatly to its value, in my opinion. I have gained more information as to the climate, natural production, manners, and customs, of America and its people, from GLEANINGS, than, from all the histories and books of travel I have read. We have been in the habit of saying, "Our American *cousins!*" but the kind and friendly tone of GLEANINGS makes me feel like saying, "My American *brothers.*" We are of the same origin, with the same literature and language; and I hope the time will soon come when we shall unite in one great brotherhood, to turn the sword and spear into plowshares and pruning-hooks, and resolve that there shall be no more war, but peace. J. WOOD.

Ohaupo, Auckland, New Zealand, Mar. 1, 1886.

Well done, *brother* Wood. We thank you for the kind compliments you pay us, and we reiterate your words. Let us by all means strive to be brothers, even though the ocean may separate us.

FROM 5 LBS. OF BEES TO OVER 10 COLONIES; A KIND WORD, ALSO, FOR E. M. HAYHURST.

I am a dentist, not an apiarian; but nevertheless I may have some latent or undeveloped apiarian powers or qualifications; and, indeed, if enthusiasm and love for the bee and its habits, save its sting, are ear-marks of an apiarian, I have great hopes of success, for these attributes I possess in a marked degree. On May 17 last, I received of E. M. Hayhurst, through Mr. Harry Hobbs, 5 lbs. of bees and five queens. The order and the money sent was for *warranted* queens, and just see how badly (?) Mr. Hayhurst treated me. Owing to the lateness of the season, and pressure of business, he, in order to fill his orders promptly, sent me *tested* queens—a method of fair, honorable dealing, for which, I have since learned, Mr. Hayhurst has achieved a well-deserved reputation. From those 5 lbs. I increased to 10 strong colonies, practically 13, for I caught a swarm of hybrids in the country, which I divided into three colonies, and Italianized from my Hayhurst bees. At first, recreation and a change from the routine of indoor labor was the object sought; but in spite of every thing, I caught the fever; and should I lose my bees this winter, the probabilities are I shall be convalescent in the spring, but not absolutely *cured*. In August I bought of W. M. Scheidall 43 stocks and all his apiarian supplies, consisting of prize boxes, 8000, mostly in flat; 300 frames for prize boxes, honey-extractor, A B C of Bee Culture, GLEANINGS since 1879, Simplicity hives sufficient to increase my apiary to 200 single boxes. Thus you see I have at this writing 56 colonies. If this isn't bee-fever on short notice, Mr. Root, then what would you call it?

Eureka, Ill., Dec. 30, 1885. S. W. LAKIN.

FROM 50 TO 66, AND 2000 LBS. OF HONEY, BY ONE WHO IS 74 YEARS OLD.

I take GLEANINGS, and am very much interested in reports. I am 74 years old, and have been in the bee-business more or less since I was 18 years old. I took out of my cellar last spring 50 stands of bees in good order. Notwithstanding the poor season, I took over 2000 lbs. of extracted honey, and put back this fall 66 stands, strong and in good condition. I have never raised section honey, but I think of doing so now, as I have given up other business, and will have more time for my bees.

Cascade, Ia., Dec. 30, 1885. WM. HEITCHEN.

FROM 31 TO 54, AND 1200 LBS. OF HONEY.

Bees did better here last year than usual. I began the spring with 31, and closed in the fall with 54. I have already moved most of my bees, and will move the rest soon to the Dugdown Mountain.

We got last year about 1200 lbs. of honey, increased 23 swarms, and sold 3 besides. Most of the honey was extracted, and was sold at 12½ to 15 cts. per lb. We have on hand at this date, about 15 gallons. Some of our colonies are weak, but I think we shall be able to begin the spring (say first of April) with 45. We expect our bees to do better this year, as we think we have a better location. The Dugdown is a part of the Appalachian range of mountains, beginning in Alabama, and extending to the mouth of the St. Lawrence River. We are now at the foot of this range (north of it), so that our bees will have access to the forests on one side, and the fields on the other. J. M. HARRIS.

Cedartown, Polk Co., Ga., Feb. 13, 1886.

FROM 37 TO 95, AND ONE TON OF HONEY.

I now have 95 swarms in the cellar, and they seem to be feeling first rate, by their appearance, this cold winter weather. I increased from 37, spring count, to 95, and secured a ton of salable honey. I could have done much better, but I was alone, and had all to do as far as attending to the bees was concerned. My wife made nearly 1200 honey-boxes, and helped about extracting some 300 lbs. We extracted only to give the queen more room. We are somewhat advanced in years, my wife being 53, myself 58. H. F. NEWTON.

Whitney's Crossing, All. Co., N. Y., Jan. 20, 1886.

FIRST PREMIUM FOR THE BEST DISPLAY OF HONEY AT THE NEW ORLEANS EXPOSITION, BY A "NOVICE."

At our State Fair, held at this place last Oct., I received a diploma for "best display of honey." I sent a few sections to New Orleans, and have just received a diploma from there for display of "very fine honey," and I feel very much pleased for a "novice" in the business. I have not made much money as yet, but am still pushing along, and I think that, after this season, I shall be able to hold my own. E. A. MOORE.

Reno, Nevada, Apr. 15, 1886.

THE ENORMOUS YIELDS OF ONE COLONY.

The past honey season in this vicinity was the best I have known since I commenced keeping bees, ten years ago. It is the first season I have been able to obtain any surplus from the willow. Some of my best swarms gave me 20 to 25 lbs. of willow honey in sections. The season throughout was very favorable. From my best swarm I extracted 360 lbs., mostly clover; this was from one swarm only, no increase. I ran them this season 6 stories high, L. hive (winter them in three stories). I think I could have taken 400 lbs. from that swarm if I had had help to extract at the proper time. Last season they gave me only 45 lbs. The two seasons previous, that hive gave me 340 lbs. each year (1882-'83); in 1881 it gave me 310. The honey for 1882-'83 (640 lbs.) I sold for $136. That hive has paid the best of any I ever owned. Somehow I have not been able to obtain nearly that amount from any other hive. They seem to have the "push" to them, and work with more vim than any other swarm in my yard.

I wish to say a word in favor of the perforated-zinc honey-boards. They work to a charm with me. I would not be without them for twice their cost; no trouble now in obtaining frames solid full of honey in the supers. I shall use them largely the coming season. CLARENDON BUTMAN.

Plymouth, Maine, Jan. 25, 1886.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

A SMOKER NOT ALWAYS NECESSARY; ALSO A KIND WORD FOR THE EDITOR OF GLEANINGS.

FRIEND ROOT:—I believe you a friend to every "beeist," therefore I hope I am not unduly familiar in addressing you as "friend Root" on such short acquaintance. The impression your editorial and comments therein have left on my mind are that you are "full of the milk of human kindness," and that I need not be so formal in writing you.

My first experience in bee-keeping began last spring, when I bought three strong hives of Italians. During the season they increased to ten (including one swarm that "took to the woods"). I sold three hives and a little honey, and started the coming season with six strong colonies that have been left just where they were first placed, and have required no feeding or other attention so far, and I think they will come through all right.

I want to give you a bit of my experience with the smoker which I got from you. It was a little late in the season when it arrived, and I had safely hived my three first swarms without getting a sting, and I used neither smoke, gloves, nor veil; but when my smoker did come, I thought I'd show them that I was "big Ike," and let them know what was in store for them if they didn't behave. So I loaded up the smoker, went out to one of the hives, and lifted off the top, with a sense of *authority* and *security* that must have tickled them immensely, for it wasn't more than ten seconds after when I gave them their first dose of smoke before they began to "tickle" me in a way that was not at all funny to me, however much they may have appreciated it. Since then I use smoke only when I'm obliged to, and I find that, by careful, gentle handling, I seldom require it. WM. E. CUNNINGHAM.

Hartwell, Hart Co., Ga., Feb. 22, 1886.

Friend C., you have hit upon an important truth. A great many times bees behave worse with smoke than without it; and it is the business of the intelligent bee-keeper to tell when to use it and when not to use it.

MEXICAN BEES, IN APPEARANCE LIKE AN ITALIAN QUEEN.

I saw in one of the back numbers of GLEANINGS where Mr. McCamant speaks of Mexican bees. One of my friends told me of cutting a bee-tree up in the Nueces Cañon. He said the bees were yellow, and longer than the blacks. I supposed at the time they were Italians; but the other day another of my friends who had worked with bees a good deal told me of robbing a cave up there, and that the bees were long and yellow. They were very gentle, and did not sting him once. I questioned him closely in regard to them, and showed him my Italians—also a queen. He said they were all like the queen I showed him. Next summer we are going up there to see if they are really as he describes; and if I do I will send you a few of the bees. W. B. KENDALL.

Uvalde, Tex.

Friend K., by all means look this matter up. If we have native bees in our own land, with yellow stripes on, we all want to know it.

POISONOUS HONEY OF ASIA MINOR.

From an article on honey, in the Library of Universal Knowledge, I note the following:

> It should be mentioned, that honey occasionally possesses very deleterious properties. Xenophon, in his history of the Retreat of the Ten Thousand, describes the honey of Trebizond as having produced the effect of temporary madness, or, rather, drunkenness, on the whole army who ate it. Mr. Abbott, writing from Trebizond in 1833, to the secretary of the Zoological Society, observes that he has himself witnessed that the effects of this honey are still precisely the same as those which Xenophon describes, and he adopts the views propounded by Tournefort in 1704, that the poisonous properties are consequent on the bees extracting the honey from the *Azalea Portica*. Many other instances of poisonous honey are on record.

From an article on the *Azalea* (same authority), I note:

> The whole is narcotic and poisonous, and the honey collected by bees from its flowers, which very much abound in honey, is said to cause stupefaction and delirium.—North America abounds in azaleas.

Dresden, Tenn., Jan. 23, 1886. GEO. S. BOYD.

CAN THE WORKER-BEES CONTROL THE SEX OF EGGS?

Two years ago, on taking bees out of my cellar, I found one queenless colony, and I gave them a frame filled with worker-eggs, no drone-cells in the comb. On examining, after some days, I found several queen-cells, and a patch of drone-cells about 3 inches square, from which perfect drones were hatched. Does not that prove that the workers have the power of controlling the sex of the egg? I think it is conclusive proof that they can, and do so when circumstances render it necessary for them to exercise that power. J. BLACKHALL.

Hobart, Ind., Mar. 26, 1886.

WHAT KILLED MY BEES?

There is nothing in bee-keeping that is more annoying than robbing. I have had several cases of it since I began, three or four years ago, and in every case it was brought about by some oversight or negligence on my part. I had a case during the winter; and from the confidence with which "sheeting" is recommended I unhesitatingly applied the sheet to the robbed colony. The result was a considerable loss of bees that at nightfall were found adhering to the sheet, unable to fly. In addition there were quite a number in the same condition on the ground under the sheet. I concluded that, warm as was the day for winter in latitude 32°, it was too cold for a prolonged stay of the bees out of the hives. But having another robbing case this spring, and again applying the sheet, the loss of bees was still more striking. In putting on the sheet, which was quite large, I took particular pains to stretch it as far away from the hive as possible, so that there might be no lack of fresh air to the imprisoned bees. The result was the death of hundreds of bees. As I did not wish to have my bees destroyed in such a way, I confined them next day to the hive by means of a wire-cloth covering over the entrance. This seems to have worked nicely, as I was very careful to shield the hive from the rays of the sun, and at night to give them a small pan of water, every drop of which they drank. Now, in the sheeting cases, what killed my bees? I confess that I am utterly in the dark. JOSEPHO.

Tuscaloosa, Ala.

Friend J., didn't the bees sting each other while confined under the sheet? Robbing usually results in the death of a good many bees, no matter how it is managed. By far the better way is to have the colonies and entrances so arranged that no robbing ever gets started, even for a few moments.

HURTING THE HONEY-TRADE.

I am compelled to bring my pen into use now, as I have read Mrs. Harrison's and Mr. George A. Wright's letters in Feb. 1st GLEANINGS, pages 97, 98. I could not help saying amen when both strike the key-note on feeding honey in place of sugar. Theirs have been my thoughts for two years, but I would not say a word to you about it, for fear you would just give me "hakins" because you recommended feeding sugar so much. A bee-friend of mine some four years ago fed sugar, costing him 10 cts. per lb., and sold the same at 15 to 20 cts., and was caught at it, and that little bit of transaction has damaged the honey-trade in this place to such an extent that it will take years to get rid of the idea that all honey brought into market by bee-men is more or less sugar. But old box-hive farmers have pure honey, as they have not learned to feed sugar. Why, one of our grocerymen asked me one day where I bought my sugar to feed so many bees—100 colonies. What I say is, Let the bees die if they do not raise enough to live on. I, too, feed section honey, if I have not enough other. The time has come for bee-men to stop helping the sugar-trade to our detriment. WILLIAM ST. MARTZ.

Martinsville, Ill., Feb. 3, 1886.

EFFECT OF REDUCING THE SIZE OF THE ENAMEL CLOTH OVER THE BROOD-NEST.

I notice in a recent issue of GLEANINGS that an inquiry is made by a correspondent in regard to the use of enamel cloth over the brood-chamber, the same cut somewhat smaller than the hive. Your reply, that it would not be practicable unless slits were cut in it, is directly opposite to what my experience has been for the past two years. I cut my cloth about two or three inches smaller than the hive, so the space left uncovered is, of course, from one to 1½ inches wide. I have had no trouble from the queen, and I think sections are cleaner than when no cloth is used. I think it very unlikely that a bee heavily laden would make her way over the brood-combs, covered as they are by bees, but she would take a more unobstructed passage up the sides of the hive and outside ends and side of the frames. If this be so, the cloth might come within ½ inch of side of hive, and not be any obstruction to them.

Another advantage of the cloth is, that a strong draft is prevented through the brood-nest when operating with the sections, and the bees are not excited to the extent they are without it.

Rochdale, Mass., March 1, 1886. J. R. NICHOK.

THE BEE MOTH.

It has been discovered beyond a doubt, that the bee moth follow civilization. We emigrated from Lake Co., Ohio, in May, 1844, and landed at Milwaukee, Wis., then quite a flourishing village. We moved up by land to Sheboygan Co., on the old military road, cut through the wilderness by the government. The upper lake counties being all timbered lands, we found that the woods in the western part of Sheboygan Co. abounded in wild bees in trees. There were no signs of the bee moth. We found some trees where the bee-comb was so old and black that the honey-cells were not one-half size. The comb was heavy; we could not strain out the honey, so we boiled it out and then boiled it down and clarified it the same as maple syrup. The bee moth did not appear until the 7th year among the domesticated bees. The wild honey-bees were far in advance of settlers in Wisconsin and Minnesota.

HOW BEES EMIGRATE?

A bee-hunter saw a swarm going in Illinois in the direction of a grove that was 15 miles distant, being the nearest timber. On arriving there he was told by a settler that they had gone over; and the direction they went from the grove, it was 30 miles to the next timber. During the war, when the 4th Wisconsin Volunteers were in route from Fortress Monroe to New Orleans, and when off the coast of Florida, a swarm of bees went through the rigging, going seaward. There was some speculation among the officers and men as to where the bees would hang up at night, etc., as they must be Union bees, flying from the land of secession, being invariably robbed by both armies; they passed over about 11 o'clock A. M., going in the direction of Cuba.

Chetek, Wis., Feb. 18, 1886. E. G. SLAYTON.

LEAVING ON THE UPPER STORIES DURING WINTER; FRIEND FRANCE'S IDEAS UPON THE SAME.

On page 104 of Feb. GLEANINGS I find an article entitled, "Danger of Leaving an Upper Story on During Winter." Mr. J. W. Thompson says he has lost one colony, and charges the loss to the bees having all sealed honey. He says, "So you see the loss of this colony is attributable to my neglect, for I knew very well that bees could not winter, even in this climate, on all sealed honey." And the editor, in his foot-notes, doesn't help the case at all. He says, "Bees are always liable to go into the upper story when it is left on all winter, because the warmth from their bodies rises naturally, and they follow in their efforts to cluster in the warmest place in the hive."

Now, I disagree with Mr. Thompson, that bees can not winter on all sealed honey. Allow me to say a few words, as I have had a large experience in wintering bees outdoors. If Mr. T. had put that set of all-sealed honey into the upper story, and his empty combs in the lower story, his bees would not have starved. I am wintering 60 colonies in L. hives, all with upper stories on, and my aim was to have the upper story full of good sealed honey. I have the lower story full of combs, and have enough of the lower combs empty for the bees to cluster in during wet weather. When the weather is very cold, the bees crawl into the combs, one bee in each cell, and then fill the spaces between the combs with bees, making a solid ball of bees. If their stores are over the bees, they will get it, as the heat of the bees rises, but they won't cluster up among the full combs of honey in cold weather. As they could occupy only the spaces between the combs, and could not keep themselves and the honey warm, they cluster up as near the honey as they can, and will follow the honey up as they eat it out.

A good strong colony, with empty combs to cluster in, and honey enough over the cluster so they don't eat their way up through to the top of their honey, will stand a great deal of cold weather, and come out all right in the spring.

My L. hives are all made quadruple chaff hives. I have used them four years, and have had good success wintering outdoors. E. FRANCE.

Platteville, Wis., Feb. 15, 1883.

FACTS VERSUS THEORIES, AND THE PROMPT WAY IN WHICH FRIEND BROERS OBEYS ORDERS.

I notice you say in GLEANINGS, April 1, that you want us bee-keepers to give you facts from experience, not opinions. Now, I have to-day had some little experience which has taught me one fact which I will try to remember; and as others may have similar experience, only it might turn out worse than mine, I will give the facts here, so that others may profit thereby. To begin, I had a rousing swarm of bees come out about 9 o'clock, April 3, which were duly hived, and are doing well at this writing. Yesterday I noticed that a great number of young though seemingly mature bees were crawling out of the parent hive above mentioned, and were dropping in a helpless condition in front of the hive. I felt suspicious, but let them alone until this morning, when I opened the hive and found the bees were actually starving. I at first thought it might be something else; but to test the matter, I tilted the hive back and poured in about a gill of sugar syrup, and in less than half an hour every thing was lovely again, and they have been working all the rest of the day. By way of explanation, I must state that, the night after the swarm came out, there came a north wind which blew for three days, and, of course, checked the honey-flow completely, as we came near having frost; in fact, we did have a little, but it did no great damage. I could give you my opinion about the matter, but that would be contrary to orders, so I give you the facts, and should like to have your opinion. I have never heard of a similar case; and if I had not been on the lookout, I should have lost a good colony of bees; therefore I give the above as a caution to others. I have had six swarms up to date—41 colonies, 5 nuclei on hand.

Gonzales, Texas, April 8, 1886. M. BROERS.

Very good, friend B.; and the moral to your little story is so plain I think we can all "catch on," even if you don't give us your views.

OVER $500 WORTH OF GOODS OF US—ALWAYS SATISFACTORY.

I have just received a draft for honey and wax sent you. I am very thankful to you for helping me out on honey. I have sold only $500 or $600 this season, about one-third as much as usual; price 10 and 12½ cts. for extracted, and 12 ½ and 15 cts. for comb. I have been looking over our accounts since I began bee-keeping with four swarms in 1878, and find I have purchased of you over $500 worth of goods, and your goods have always given satisfaction. I now have 70 chaff hives, with metal-cornered wired frames for all of them. I would not use any other frame. I am very particular to have the wires imbedded in the frame, as it is less bother with propolis. I like the plan of filling the upper tier of wide frames with closed-top sections, as it is less work to clean them. After having a good many sections built wholly on one side, and others stuck to tins, I am particular to have the frames and boxes stored perpendicularly instead of down flat, as I used to. The red-clover queens I got of you have always given good results. Nearly every Italian swarm gathered enough honey to winter on, while the few blacks I have had to be fed from 5 to 20 lbs., and there has always been about the same difference every year.

What has given me more pleasure than your square dealing, and the interesting varied departments of GLEANINGS, with your sound views on tobacco, and all other evils, is the education of your children for honorable productive industry, instead of making aristocratic nobodies of them.

CLAUDE SMITH.

Norwich, Chenango Co., N. Y., Mar. 11, 1886.

IODINE AS A REMEDY FOR BEE-STINGS.

Noticing your remarks in A B C book concerning remedies for bee-stings, let me relate: For many years I have obtained a precarious livelihood by the practice of medicine. I once had several swarms of bees, and read "Langstroth on the Honey-Bee." Of course, I got stung. Now, a bee-sting is with me a rather serious matter. One in the fall will close my eyes (one or both) for two days. When attending medical college, Prof. Brainerd demonstrated to us the control of iodine over the "woorah" poison, and gave his opinion that the poison of serpents and of venomous insects is nearly or quite identical. I tried tincture of iodine on the bee-stings, with complete success. If applied before the poison has time to get beyond its reach, it (on me) relieves the pain *instantly*, and prevents the subsequent swelling. Let "the boys" try it; and if it proves a success, publish it in some bee-journal as a small contribution to the relief of one of the ills to which humanity is liable.

O. B. ORMSBY, M. D.

Murphysboro, Ill., Apr. 4, 1886.

Friend O., your remedy has been given several times in the pages of GLEANINGS; but as it has been dropped after a time, and apparently forgotten, I can not think that it as a general thing makes any very great difference. If the remedy can be made to reach the liquid poison, no doubt it might neutralize it.

GROWING LINDEN FROM SEED, NOT ADVISABLE.

In response to some inquiries in regard to raising basswood, or linden, from the seed, the proprietors of the Elgin nurseries answer as follows:

In reply we will say, that we do not think it would be advisable to recommend growing the linden from seed or layers; those who do not understand it would only make a failure of it; and if they wanted only one or two thousand trees they would spend more time and money than it would cost to buy the trees one or two years old; and nine out of ten would have nothing to show for their bother and cost of seed. If you want us to grow linden for you on a contract, we can grow them very cheaply—much cheaper than any one can afford to grow them where only a few are wanted. The above is the most sensible thing we can give you on linden, as you want them.

Elgin, Ill., Mar. 13, 1886. E. H. RICKER & CO.

EUROPEAN AND OTHER LINDENS; SOME VALUABLE FACTS.

I wish to state that the European linden (*Tilia Europæa*) has not so large a leaf, nor is it so rapid a grower, as the American, but forms a more compact head, or crown. The same may be said of *T. macrophylla*. There is, however, a serious drawback to the European forms; during our hot and dry seasons, when they are often denuded of all leaves for a long time till the moist season sets in, a small after-growth is produced, which is not always conducive to a healthy state. The so-called silver-leafed linden (*heterophylla*) is a native, often found among others. Pretty large trees can be transplanted, in cities and villages, where maples, elms, etc., fail. I have succeeded with linden, and plane-tree, or buttonwood. F. Z. M. OTTO.

Sandusky, O., Mar. 7, 1886.

BAREHEADED BEES NOT CAUSED BY WAX-WORMS.

I noticed in GLEANINGS some time ago, where C. C. Miller says: "Now, I don't quite think they ever leave them uncovered till the wax-worm uncovers them, or runs a gallery over the bees in the cells for the bees to dig away, thus leaving the cells uncovered," and he also puts the query to you, "Did you ever see a patch so large that you could lay a silver dollar upon it and have all the cells under it uncovered?"

Now, friend R., I have read the statement referred to by friend M. in the A B C, and have made it a point to verify it; and I can say positively that I have seen strong colonies of bees, in hives perfectly free of worms, that left patches of brood bareheaded, as you term it, that you could not cover with *two* silver dollars, and old enough to begin to assume the natural color of a bee when mature. Our warm climate may have something to do with the matter, but what I tell you I *know* to be a fact.

Gonzales, Texas. M. BROERS.

HOUSE-APIARIES — DIFFICULTIES OBVIATED IN PART.

In your remarks on friend Clarke's article you say you would want no floor. How would you make it mouse-proof? My house is mouse-proof, also bee and moth excluding. When moths undertake to get in they only get under the outside doors, on to the screen-doors, and are easily killed in the morning. My house does not heat up, as friend Clarke says. The screen-doors admit a circulation of air, they being the only ones used in hot or warm weather, except that the outside doors are closed nights. I think the reason bees do not go out at those little doors, as you mention, is because such a draft of air comes in so strong as to almost take the little fellows back, and the air is cool too. There should be no windows, as the sun shining on them causes much more heat, and they bother getting the bees out of the house, while screen-doors do not.

H. S. HOXIE.

Holloway, Lenawee Co., Mich., Mar. 8, 1886.

Friend H., I would get rid of the mice by using "rough on rats." We have of late, and find that it is cheaper than cats or any thing else, and it does the business effectively.

A FEW MORE PROOFS THAT DRONES DO CONGREGATE IN LARGE NUMBERS.

On page 259, O. G. Russell strikes the right key where he says, "I believe that drones congregate in large numbers, and the queen, attracted by their loud humming, flies among them and is fertilized." We have large red ants here that live in the ground, make a mound, and carry seeds to live on (agriculturists). The queens and drones have *wings*. I have seen the spot three seasons where the queens were fertilized. The air is full of drones and queens, and they fall to the ground clutched together. I have seen several drones holding to one queen. I have noticed drones from my hives all going in the same direction. My neighbor, living over four miles away, keeps black bees. One season I noticed my drones going south-east, and afterward we noticed he had Italian bees. I have thought for ten years that the drones selected a spot, and that the queens congregated there by the humming of the drones. I should like to hear more on the subject. I think the spot can be found by lining the drones.

Sherman, Texas, Apr. 8, 1886. M. S. KLUM.

EUROPEAN LINDEN INFERIOR TO AMERICAN.

Having just received GLEANINGS, I see that you ask if there is any one who could tell about how much honey the blossom from the European linden would produce, compared with the American. I don't know that I am competent to explain it clearly. I was born in Switzerland, and emigrated to America in 1870. I was then 20 years old. I have gathered linden-blossoms there, as they use them for tea in some kinds of sickness. The blossoms are about half as large as they are in American linden and are not as plentiful as on American linden either. I am taking a county paper from home, and see that a bee-keeper gives his report for 1885, the person being a minister of the gospel. He had 60 colonies in spring, and obtained 2800 lbs. of honey. He sold it for 2800 francs. He considered the season one of the best they have had there for many years. H. WIRTH.

Borodino, N. Y., Feb. 20, 1886.

Thank you for the valuable information you furnish in regard to the European linden, friend W. Very likely our American is the best for honey.

A QUERY IN REGARD TO MAKING FOUNDATION.

The foundation-mill came to hand in good order. The charges on both packages were but 90 cents, which I think was very reasonable. Now one question: Do you ever use water in the center can? If not, how do you get the wax out when it gets partly out, and you have no more with which to fill?

Bees are wintering well. I suppose almost every bee-keeper is trying to accomplish something unusual, either in wintering or something else, and I am no exception.

WINTERING A SWARM ON ONE EMPTY COMB.

On the 29th of November last I took a small late swarm, without a particle of honey, and gave them one empty comb to cluster in, or so that the queen could start brood whenever she saw fit. I placed this comb with the bees between two of my patent feeders, filled with food enough to winter a small swarm. I have not had the feeders patented yet; but as it is getting to be fashionable to patent hives and fixings in Michigan, I don't know but I shall have to follow the fashion. On the first of December I put this swarm, with the rest of my bees, into my bee-cellar. The fifth of March I took all my bees out for a fly. You can imagine about how I felt when I found this little swarm in as nice condition as though they had been wintered on a hive full of honey or any other kind of food.

Now, friend Root, I know that one swallow does not make a summer; I also know that one straw will show which way the wind blows. Another winter, if I live, and my bees live, there will be more than one swarm fixed for winter just the same as this swarm was. The feed will cost from 75 cts. to a dollar per swarm. A man can make and fill feeders enough for ten or fifteen swarms in a day. You have no bother feeding, besides saving all the honey. But, wait a moment. I said one swallow does not make a summer. I have just been out and examined this swarm. They have a nice patch of brood, and one of the feeders is about one-third filled with nice new comb, as white as paper; and as the top-bar of the feeder is the top-bar of an L. frame, or, rather, the feeder is an L. frame with my—well, my patented sides nailed on, all you have to do is to take the sides off and you have a nice comb all ready for the queen, and I am not sure but if I had looked closely I should have found brood in this comb. WM. L. KING.

Sodus, Berrien Co., Mich., Mar. 10, 1886.

The matter of using water under the melted wax, in making foundation, has been frequently discussed. We do not use it in our work, because we always have plenty of wax; but many of the friends say they succeed just as well with water under the wax. —The matter of wintering a colony on empty combs is not new. The same thing has been done repeatedly, with nothing but lumps of candy laid on top of the empty combs.

BOOKS ON ENGINES AND STEAM-BOILERS; WHERE TO GET.

I notice in GLEANINGS, Mar. 1, that V. W. Keeney, of Shirland, Ill., wishes to get a work on the steam-engine. I will say to him that he may procure the work he wants from "Frederick Keppy, Bridgeport, Conn." Send him a stamp for his catalogue. His books are fully up to the times. The following books of his publication, best adapted for stationary engines, are, "Use and Abuse of the Steam-Boiler." Price $2.00; and "Practical Steam-Engineer's Guide," price $2.50, postage paid. I think you will do well to add the above two works to your book-list. The time is coming when engineers will be required to have a thorough knowledge of the duties they are called upon to perform.

Luna, Ark., Mar. 1, 1886. E. H. SMITH.

CAN PURE GRANULATED HONEY BE SUCCESSFULLY IMITATED?

In all I have read about honey since I became a bee-keeper, I do not remember of any one claiming or suspecting that pure granulated honey could be successfully imitated, except friend Foster. If I remember rightly, you did not agree with him, Mr. Editor. Now, if you regard pure granulated honey as difficult, or not likely to be imitated, why not advise the friend on page 184 to purchase granulated honey? Very many of us claim its imitation is impossible, and state this to dealers and consumers. I wish to know whether this is true or not.

J. B. COLTON.

Waverly, Bremer Co., Ia , Mar. 8, 1885.

I have never seen a successful imitation of granulated honey, friend C. The granulation of grape sugar might, at first glance, be considered the same thing; but careful investigation will show that it is not granulation at all. It is simply solidification, just as tallow gets hard by cooling.

WHAT IS THE BEST METHOD OF MANAGING THE CLUSTERING OF SWARMS IN A FOREST?

I write to you for advice as to how to manage our bees. We work for section and comb honey mostly, and some extracted. We have managed by natural swarming, putting swarm No. 2 into hive No. 1, swarm No. 3 into hive No. 2, and so on. We get plenty of honey sometimes, but it takes much hard work, for we live in the timber, and are surrounded by forest-trees. Many swarms alight 25 to 30 feet high, and I have to move a heavy ladder and climb after them. As I am 57 years old I do not see much romance in it. The bees swarm out a good deal, and thus make us more work. If you give us some easier way, we shall be much obliged. We have the A B C book (old), about one bushel of GLEANINGS, and over 80 swarms of bees in Simplicity hives. We use division-boards, and pack in chaff by setting a rough box over the hive, filling in, and covering over with about 4 inches of chaff. We put this on in the fall, and take it off about the first of June. We use the hives two and three stories high in summer, taking them off in the fall, and wintering in the lower stories. I have been very successful in wintering without loss, and my bees come through pretty strong too. We do not make it pay financially. I like to work with the bees pretty well, but my women-folks do not care much about it. Our two oldest girls have gone to Washington Territory, and that will leave us short of help. There is very little sale for bees here.

E. A. KIRKPATRICK.

Bowling Green, Pike Co., Mo., Feb. 10, 1886.

Friend K., this matter of keeping bees from going into the tops of high trees to cluster has been a good deal discussed; but it seems to me that no better way has ever been offered than to have the apiary located where such large trees are not very near by. Swarming artificially, so as to keep the bees from natural swarming as much as possible, is also a remedy.

ONE BUCKET OF WATER DAILY FOR THE BEES.

My bees have been gathering pollen every day since the 5th; they consume about one bucket of water daily (29 colonies); have brood in all the hives, and are all doing tiptop. Day before yesterday I neglected to put warm well water (74°) in my stone troughs, as is my custom, and the result was I had about half a pint of bees chilled, and in the cold water, in about three hours; but after taking them out, and putting them in a sunny place, they (with the exception of about half a dozen) came to themselves again and went to their respective homes. I give this merely as a caution to new hands at the business, not to supply their bees with ice water, at least in cold weather. M. BROERS.

Gonzales, Texas, Feb. 18, 1886.

Friend B., a bucket of water daily for 29 colonies is, I think, more than I ever knew bees to use before during the hottest weather. Didn't a great part of it evaporate?

HORSE-POWER FOR MAKING HIVES, ETC.

I see by GLEANINGS that you want to be posted in regard to the "Fearless" horse-power. I have had one in use for 20 years, and it is as good as new. I send you by to-day's mail an old circular. I think the machine a good one. GAIN R. SMITH.

Victor, Ont. Co., N. Y., Apr. 7, 1886.

Thanks, friend S., for your circular. Since your article was printed we have received quite a number of circulars in regard to horse-powers for hive-making. The tread-power is probably one of the best; but the one you mention as the "Fearless." we notice costs about $140. Circulars of other horse-powers have been sent us. We notice one from the Sandwich Mfg. Co., Sandwich, Ill., that costs only 30 or 40 dollars. Perhaps this latter will not give the power of the other, but it comes nearer within the means of the average bee-keeper.

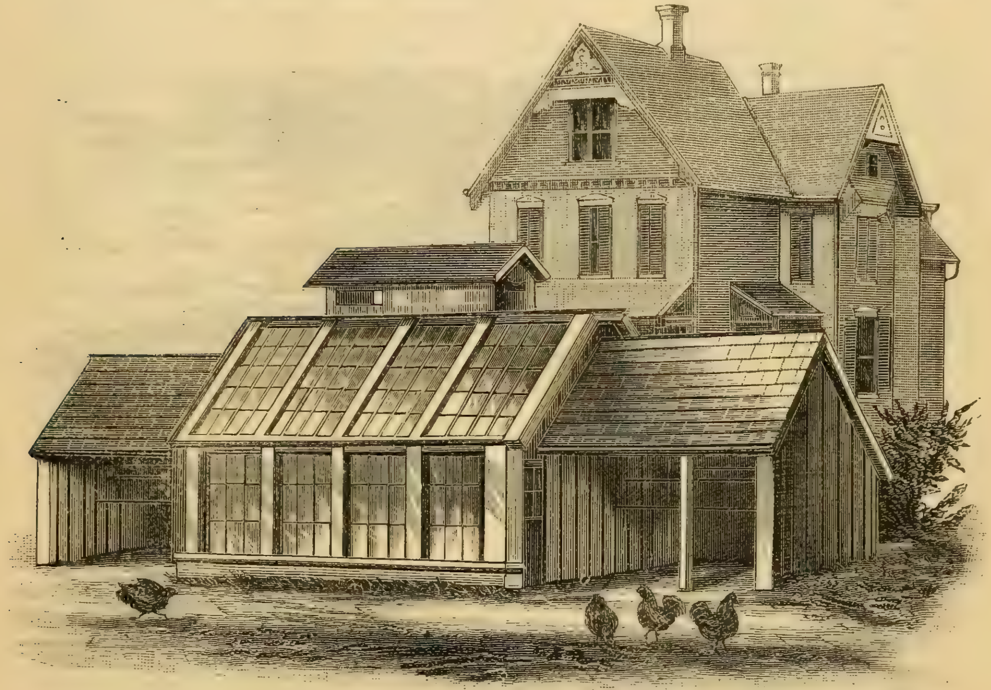
OUR POULTRY-HOUSE.

A BETTER PICTURE OF IT THAN WE GAVE LAST MONTH.

As the engravers disappointed us in getting our engraving ready, we were obliged to use, last month, a simple outline picture. Since then they have made so nice a picture that we concluded to give it here.

The large building in the background belongs to Neighbor H. You will remember that Neighbor H. and myself married sisters, so it comes about that we have houses on opposite sides of the street. Neighbor H. does not raise chickens—that is, he is not a chicken-man, although he gets a good many eggs in the good old-fashioned way by just letting the fowls "slide." He is a most enthusiastic bee-man, however, and just now his household, as well as the little cousins across the way, are full of enthusiasm over a new "queen-bee," in the shape of a new girl-baby, only about ten days old, belonging to him.

The picture of the poultry-house above shows very plainly the way in which the roosts run clear through the whole of the buildings, although the engraver forgot to put in the little doors that permit the fowls to sleep in the shed or in the inner apartment, according as the temperature of the weather may move them. During the winter we permitted the rabbits and Pekin ducks to occupy the yard with the fowls; but both have now been turned out for bad behavior. After I put them outside, every little while somebody kept telling me that my rabbits were loose, or that my ducks had got out. I replied by telling them that both had been excommunicated for bad conduct. The Light Brahmas are now the sole occupants of the yard, except a little Brown Leghorn hen that is my especial pet. She will let me pick her up any time I wish, even when she is walking across the lawn. She has raised one brood of chickens since the first of January, and is now diligently presiding over a sitting of thirteen. By the way, my heavy Light Brahmas don't work well as sitting hens, for they are so heavy they keep breaking the eggs. I fixed their nests in ever conceivable way, but they keep crushing their eggs with their great clumsy feet, no matter what I do, while my trim little bit of a Brown Leghorn covers about as many eggs as the Brahmas, and she was never known to break an egg in her life. It really seems as if she laid an egg every day of her life, when she is not sitting. It has been suggested, that the Brahma eggs have too thin shells. Now, they have bone meal right before them all the while; but somewhere I saw it mentioned in the poultry-journals, that overfed fowls are apt to lay very thin-shelled eggs, even if abundantly supplied with lime. May be that is the trouble; but I would much rather have it said that I feed my domestic animals too much than that I feed them too little.



OUR POULTRY-HOUSE AS IT APPEARS ON OUR GROUNDS AT THE "HOME OF THE HONEY-BEES."

Notes and Queries.

WANTED, IRON-CLAD, FROST-PROOF QUEENS FOR EARLY SHIPMENT.

COLD weather, not candy, caused the loss. We wish to breed an iron-clad, frost-proof bee for the early spring time. Our losses are being made good this week; weather superb.

J. W. K. SHAW & CO.

Loreauville, La., April 21, 1886.

[Quite a lot of queens, received when the weather was cold, from J. W. K. Shaw & Co., came through in bad order. When we suggested that the candy was too hard, they replied as above.]

WHITE-PLUME CELERY.

I find Henderson's White Plume a better keeper than has been claimed for it. I have it in fair condition now. E. W. SHATTUCK.

Springfield, Mass., Feb. 23, 1886.

[So do we.]

DWINDLING IN AUGUST.

Have you or any of your correspondents had their bees dwindle down in August, September, and October, from a large, heavy, and populous colony, to a very small one, say not more than half a pint to a pint of bees? and if so, what is the cause?

Dexter, Maine. L. FRENCH.

[We have never had bees dwindle down in August and September unless it was from the nameless bee-disease mentioned in GLEANINGS.]

THE PROSPECT FOR THE SEASON GOOD.

My 28 colonies of bees have come through the winter in fine condition on summer stands in Quinby closed-end-frame hives; they were packed with oats chaff, and covered with snow during all the cold weather. The prospect for the season is quite good. GREEN R. SHIRER.

Greene, Butler Co., Iowa, Apr. 14, 1886.

"NOT DISCOURAGED YET."

There was neither honey nor money about bees last season. I am not discouraged yet. I commenced last spring with 50 colonies; sold $60.00 worth of queens and bees, and took 300 lbs. of honey. I have reduced my stock by doubling. They are in good condition. The peach-trees failed to bloom this year, therefore the industrious little things have to be idle because there are no blooms for them to visit. W. D. THARP.

Williamsburgh, N. C., Apr. 9, 1886.

BARK-LICE NO MORE.

The bark-lice on the maple, I believe, are mostly dead. My reasons are, there was not much of a second flow of honey-dew last season. The bugs did not fasten themselves to the limbs as they did the year before. Many of them were found dead on the leaves, and the leaves hung on the trees unusually long, compared with the fall before. What are now on the trees, I am not sure whether they are mostly dead or alive. WILLIAM HALLEY.

Rockton, Ill., Mar. 20, 1886.

TWO BIRDS WITH ONE STONE.

I am constantly more and more convinced of the fact that raspberries should be more extensively planted by bee-keepers, because they are a profitable crop, besides the honey they furnish, the latter coming at a time when much needed, and being of an excellent quality. Hansell and Cuthbert, for early and late red varieties, are among the best, I think, while I should prefer Tyler, Souhegan, Ohio, and Gregg, for blackcaps, and Shaffer's Colossal, a cross between the black and red varieties, to cap the list; it is the most productive variety I have ever seen. Its growth is simply wonderful, and the berries delicious. Why search for the half-stunted berries, by miles of tramping, when the waste ground about home would be improved, and your health and comfort as well, with an abundance of berries?

C. WECKESSER.

Marshallville, Wayne Co., O , Apr. 12, 1886.

THE SHIPMAN ENGINE JUST THE THING FOR BEE-KEEPERS.

I see that you have a Shipman engine. My partner and myself have one also (a one-horse power), which we use in making Simplicity bee-hives. We run one of Barnes' foot-power saws, and another 7-in. circular saw on one of your $7.00 mandrels at the same time, cutting ⅞ pine—just the thing for bee-keepers wanting small power.

W. J. KINCHELVE.

Narrow Rock, Mo., Jan. 6, 1886.

THE NEW BARNES FOOT-POWER SAW.

In replying to your request in GLEANINGS, I will say that I don't know that I am capable of passing judgment on the new Barnes saw, as I never had experience with that kind of machinery; but I will say that it gives good satisfaction, and does fine work if your lumber is free from any warp; but if it is the least warped, in cutting off end bevels you will have trouble. WILL T. ZINK.

Nichol, Greene Co., Mo., Mar. 7, 1886.

ITALIANS GREATLY SUPERIOR TO BLACK BEES.

I consider that it pays to Italianize. Mine were all blacks and hybrids last spring except 3. I extracted from one Italian swarm about 140 lbs. of nice clover honey; while from a black swarm sitting by its side, I got only about 15 lbs. Am expecting better results this year than last. I should have got three times as much honey last year as I did, but I was Italianizing my apiary, and had several hives queenless at the wrong time, which I will not do again. We must live and learn.

THOMPSON BROWN.

Cloverdale, Ind., Jan. 1, 1886.

THE RESULTS OF REVERSING DARK HONEY.

There is one thing about reversible frames and brood-chambers that I should be pleased to have explained. How is it possible to prevent the dark honey, which accumulates in the upper corners of brood-frames, from being carried into the sections when the frames are reversed? In some localities quite a little dark honey is gathered before clover-bloom. If, when clover begins to bloom, the reversal of the brood-frames results in scattering this dark honey through the sections, it would seem not to be desirable. M. FRANK TABER.

Salem, O., Mar. 22, 1886.

[Friend T., we have had so little experience in reversing frames that we can not answer your question; but I do not imagine that the difficulty you mention would occur often enough to be any great detriment.]

SEEDING DOWN WASTE ROAD-SIDES.

Honey-producing plants are scarce here, and bees can just about make a living. I am in hopes to do better when I get some alsike growing. I have been plowing the road-side, and now have it in good shape, with deep dead furrows on each side. I will now seed down, expecting to get some honey and hay, besides keeping bad weeds from seeding. I think all roads ought to be fixed that way. The good looks will nearly pay, and leave the crop for profit. ELIAS EVERITT.

Philo, Ill., Feb. 23, 1886.

CAN THE SCREW-CAP CANS BE USED FOR OTHER PURPOSES THAN FOR HONEY AND SYRUP?

We received the 20 lbs. of California honey today. It was packed very nicely, and the honey is excellent. Could we use those screw-cap cans instead of fruit-jars, for berries, tomatoes, etc.?

Elkhart, Ind., Apr. 22, 1886. M. MATUSZKIEWITZ.

[Friend M., we do not know of any reason why these cans wouldn't answer for any thing where self-sealing fruit-jars are used. May be it would be necessary to use small rubber bands around the edge of the screw caps, to make it fit absolutely air-tight.]

DRONES OUT OF SEASON.

You will see by this that my hopes are not "busted" so far this winter as they were last. I put 46 colonies in the cellar the 6th day of Dec., and Feb. 23d I took 46 live colonies out for a fly, all in good condition but one, and in that one I found drones crawling and hatching, and what I supposed to be drone-eggs. I pinched the queen's head off. Did I do right, or should I have left her to rear early drones?

WHAT DOES IT?

In carrying out my bees I found nearly all the dead bees had holes bitten in the back of their heads, and a great many bitten clear into their heads. If you can answer this you will oblige.

Orion, Wis., Feb. 26, 1886. F. L. SNYDER.

[You are probably right, friend S., in destroying any queen that produces drones in February. Young queens, when they first begin to lay, will oftentimes produce drone-brood for a little while, and then worker-brood afterward. The holes in the back part of the heads and bodies of your dead bees were probably made by mice—possibly by ants, if they were where ants had access.]

DO BEES POISON HONEY WITH THE VENOM OF THEIR STINGS?

A correspondent of the *Country Gentleman* advances the theory that honey is sometimes poisoned by the venom from the stings of infuriated bees, so as to be quite injurious to eat in large quantities. This is especially apt to be the case when the bees are roughly handled or greatly irritated, when the honey is removed. Gentle treatment he regards as the best remedy for such trouble. What is your opinion on the subject?

ESTELLINE H. WILLIAMS.

Maysville, Ky., Feb. 2, 1886.

[This theory was advanced years ago; and Mr. Langstroth, in his writings, alludes to it; but I do not know that we have had any very positive facts to substantiate it. It has been suggested that honey, heated almost to the boiling-point, is rendered more wholesome.]

HOW SHALL WE PUT UP OUR EXTRACTED HONEY?

Here is my answer: Go to the stores and places where they use large quantities of kerosene oil, and buy the empty cans at 10 cts. or less, and engage the boxes they were shipped in, at 10 cts., of your grocery merchant. Unsolder the patent nozzles, and take them out. Three boxes of lye will clean 30 or 40 cans, and you can do the work in half a day. Repair the holes that have been cut or punched in the cans, or get your tinner to do it. You can put in honey-gates, or you can take a piece of tin, and solder the cans up when they are filled. Put them in the boxes, and they are ready to ship. Two cans holding 120 lbs., and the shipping-box, ought not to cost over 40 cts. I hauled 1400 lbs. of honey, put up in this way, with straw packed under it, in a wagon nearly 250 miles, and all the cans were sound and good at the end of the journey. If you want me to do so, I will tell you how to clean the cans. J. M. KILLOUGH.

San Marcos, Texas, April 21, 1886.

SAND-BEES.

Prof. A. J. Cook:—I send you by mail herewith, a specimen, which please notice in GLEANINGS, if there is any thing of interest connected therewith.

Hudson, Mich., Apr., 1886. A. D. ARMSTRONG.

This is one of our common sand-bees, of the genus *Osmia*—see Manual, page 29. They live solitary lives, and not in colonies. They often steal into the hives of the honey-bees, to rob the latter of their stores. This one is beautiful in color, and a little smaller than the worker-bee. A. J. COOK.

Agricultural College, Mich.

SWEET CLOVER; WHEN AND HOW TO PREPARE THE GROUND FOR.

I wish to sow a piece of heavy clay land with sweet clover. It was in corn last year. Will you please tell me how to manage it to the best advantage? Shall the seed be sown by itself this spring, or is there danger of the weeds choking it if sown in this way? How would it do to sow it with oats, or with buckwheat? Will it freeze out on clay land?

Salem, O., Mar. 22, 1886. M. FRANK TABER.

[Friend T., I think your cheapest way will be to sow clover seed with the oats. There is no danger of any thing choking it. In fact, it will grow on the most barren hill-side, or even in a hard road-bed, and oftentimes it makes a most luxuriant growth where nothing else would think of growing.]

KEEPING SURPLUS QUEENS FOR SHIPMENT.

I should like to know how you keep queens a month in the office. FERGUSON WHITESIDE.

Little Britain, Ont.

[Friend W., we do not ordinarily keep queens a month, yet we can do it by giving them fresh bees every few days, and keeping the sugar in the queen-cages saturated with freshly gathered honey. We seldom keep them longer than a week; for if we get so many ahead as to cause such a state of affairs, we prefer to divide colonies and use them to start nuclei.]

TOBACCO COLUMN.

A SHORT SERMON ON TOBACCO; FROM A FRIEND WHO LETS GO OF THE PLOW-HANDLES LONG ENOUGH TO REPLY TO THE GALLIPOLIS JOURNAL.

S. DANIELS, Pine Grove, Ohio, sends us the following clipping from the Gallipolis *Journal*. It contains so many sharp hits that we here present it to our readers who may have an interest in the Tobacco Column:

MR. NASH:—In your last issue I noticed that you wanted to hear from the farmers on the tobacco question.

Now, my hand fits the plow-handle much better than a pen, and my intellect has been trained to raise fat pigs and big pumpkins; consequently my patch of literature has been sadly neglected, but I will try.

I notice that your Board of Trade is to be solicited to issue a pamphlet on tobacco. Now, I should like to make a few suggestions as to what it should contain.

I should like for it to contain the name of the man who can stand up and truthfully say that the first tobacco that he placed between his molars tasted good.

Also the mother that advises her sons to chew tobacco, and the father who is proud of his daughter because she can smoke a pipe and dip snuff.

I want to hear of the physician in good standing that recommends his children to use tobacco.

I should like it to contain, also, the name of the young man that would prefer a bride with a pipe in her mouth.

Also the name of the man that has good sound sense, and has used tobacco ten years, that has not wished himself clear of the habit scores of times.

I should like to have the address of the man who can live on tobacco alone and nothing else.

I should like to have the name of the young man that offers his best girl his plug of natural leaf and a stoga.

Young man, she has just as good a right to use it as you have.

Please have the name of the man inserted whose breath is improved by the use of tobacco.

I want it to inform me where I can procure a suit of clothes that could be improved by blotches of filth from a tobacco-chewer's mouth.

Also have it contain (in large type) the advantages the tobacco-consumer has over one who does not indulge.

If tobacco is good to chew, why is it not good to swallow? Please publish the reason.

It is my opinion, Mr. Editor, that tobacco is a curse to the American people, socially, physically, and financially; and that the raising, manufacturing, selling, and consuming, should be everlastingly sat down upon by all good citizens; and if your Board of Trade has nothing better to do than to enhance the popularity of tobacco, they had better trade themselves off for a yaller dog and then get some friend to shoot the dog; for the man that raises one good potato does mankind more good than he who raises tons of tobacco. BUCK I.

We think of coming up and seeing your apiary some time. I have quit using tobacco, after using it for two years. I used to be a lover of it. If you think me entitled to a smoker, send me one.

ISAAC THROSIKILL.

Barber's Mills, Wells Co., Ind., Mar. 8, 1886.

We should be happy to see you, friend T. Sometimes we are "awful" busy, but we generally contrive to make it pleasant for visitors.

I have used tobacco 35 years. If you will send a smoker I will quit the habit or pay for the smoker.

W. P. MCNAMEE.

Houston, Chickasaw Co., Miss., Feb. 22, 1886.

Please send me your smoker, as I have none. I quit chewing tobacco some time ago, and I heard you would send a smoker to all who have quit its use.

Hartwell, Ga., Mar. 13, 1886. W. M. VICKERY.

As I use tobacco, and am to a limited extent in the bee-business, I send in my petition, with the promise that, if I ever use the vile weed again, I will pay you double price for the smoker. W. W. GRANT.

Marion, Williamson Co., Ill., Feb. 19, 1886.

I promise to pay for the smoker if my father ever returns to the use of tobacco. ALBERT CUSICK.

Hartwick, Osceola Co., Mich., March 8, 1886.

Accept my thanks for the smoker. I am well pleased with it; and if I ever use tobacco again I will pay you for the smoker. JOHN BECKWITH.

McLean, Tompkins Co., N. Y., Mar. 6, 1886.

QUITS AT 45 YEARS OF AGE.

Pa asks me to write to you. He is a man of about 45 years of age, and has been using tobacco for a good many years. He declares he will never use it again, and asks you to send him a smoker. If he ever uses it again he promises to pay for the same.

T. F. SHEPHARD.

Franklin, Venango Co., Pa., Mar. 20, 1886.

After using tobacco about 15 years, I will quit, and expect never to use it again. If you think I deserve a smoker, please send me one; and if I take up the habit again I will pay for the smoker.

JACOB GEISER.

Goshen, Ringold Co., Ia., March 11, 1886.

ANY ONE CAN QUIT.

I smoked for 20 years, so much that it was a common saying in this neighborhood that, if my pipe were to be found cold, it would be known that I was dead; but I have not tasted tobacco for over two years. If I could quit, any one can, if he wants to. J. H. TINKER.

Olathe, Kan., Mar. 6, 1886.

TWO FRIENDS HAVE GIVEN UP THE HABIT.

In compliance with the request of my friends, A. S. Hulbert and C. H. Mills, I write you to send each of them a smoker by mail to Rozetta, Henderson Co., Ill. They have stopped using tobacco, and promise to pay for the smokers if they commence again. H. G. GILBERT.

Monmouth, Warren Co., Ill., Feb. 11, 1886.

I saw in GLEANINGS that you would give a smoker to any one who would quit the use of tobacco. I haven't used it in any way since last October; but I was a great slave to it up to that time—20 years at least. I did not quit using it to get a smoker; but I promise that if you send me one, if I ever use tobacco again I will pay you for the smoker.

C. M. SMITH.

Turnersville, Coryell Co., Tex., Feb. 16, 1886.

A "DOSE OF TRUTH" FOR ONE WHO POINTS OUT THE WAY OF TRUTH.

I have taken the "Dose of Truth." I agree that it shows why the tobacco habit is a growing sin, and, like snuff among females, is one of the worst of habits. Our clergyman, Rev. E. H. Dixson, Staunton, Fayette Co., O., is an inveterate chewer. If you will not accept pay for the Dose of Truth, please send our minister one. L. F. HOUSE, M. D.

Selden, Ohio, March 16, 1886.

QUIT USING TOBACCO AFTER TAKING GLEANINGS.

I have quit using tobacco since I commenced taking GLEANINGS, after using it 40 years, and I have not used it since Jan. 1st. If you think I am entitled to a smoker, send me one, and if I commence to use tobacco again I will pay you for it.

We have 30 colonies in Simplicity hives, and one in Root's chaff hive. I am very fond of GLEANINGS. JOHN BECKWITH.

McLean, Tompkins Co., N. Y., Feb. 23, 1886.

BECAME A TOBACCO-USER IN ORDER TO MANAGE BEES IN THE GOOD OLD WAY.

When I got my first swarm of bees, folks all told me I would have to use tobacco smoke in the good old way, to subdue them. That way was with the pipe. I couldn't tell at first which was the worse—the smart of a bee-sting or the sickness from the pipe; but I hung on to the pipe; then, to be more fashionable, I occasionally changed to a cigar; but now I have resolved to quit. No more of my bees will get the full blast of a pipe or cigar, if you will send me one of your smokers. I think the chaff hives are the hive for this country.

Ilesler, Owen Co., Ky., Mar. 15, '86. J. T. RUSH.

COMFORT FOR THOSE WHO HAVE LONG BEEN USERS OF THE WEED AND DESIRE TO QUIT.

I often think if I could wield the pen as well as I can handle the plow I would write for the tobacco column—not for the purpose, however, of obtaining a smoker, for I have one, but for the purpose of relating my own experience with the weed, with the hope that it would do some poor slave to appetite good to see how one who has been a slave for thirty years had got rid of the habit, and for several years has been breathing the pure air of freedom, except only when coming in too close contact with some one who was polluting it with the fumes of his pipe or cigar. J. A. HAUGHEY.

Sabina, O.

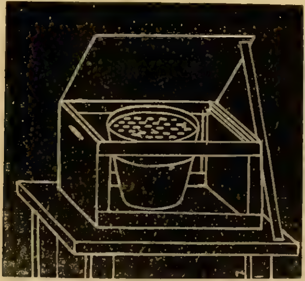
OUR OWN APIARY.

NUMBER LOST DURING THE PAST WINTER.

WELL, friends, two more colonies have been added to the death-list since our last report. The cold spell of weather during the first week in April, together with the heavy fall of snow, was too much for these two colonies. One of them, besides being weak, was queenless; the other was also weak, and during the cold had deserted their brood for one corner of the hive, where they perished. The total number of colonies lost the past winter is now five, or a loss of something less than 3% of the number put into winter quarters last year. Oh that we hadn't lost *any!* Suppose our bees had been fed on sugar stores, then what? No one can tell.

We have not had a single case of "spring dwindling," and the hives inside look comparatively clean; *i. e.*, not spotted in a manner to indicate the presence of dysentery. At this date, April 23, the colonies seem vigorous and healthy, averaging from 3 to 5 lbs. of bees per swarm. It will be remembered that all our bees had nothing but their own natural stores, and in many cases it was found there was considerable pollen in the frames of sealed honey where we had supposed that there was an absence of it. At any rate, it did no particular harm, and in many instances it was just what was wanted to start brood-rearing.

Natural pollen is now coming in at a pretty fair rate from the dandelion and fruit-bloom, which is just beginning to appear.



ANOTHER WAX-EXTRACTOR.

Hugh Vankirk, of Washington, Pa., has ingeniously extemporized a solar wax-extractor, made from an ordinary 48-lb. shipping-case, such as we advertise. Those who have had such a shipping-case will remember that the ends are rabbeted out on the inside, in such a way as to let the cover drop down plumb even with the top. Into these rabbets our friend drops a sheet of glass, cut from an old window-pane to the size of the cover. A flat gallon crock, into which is fitted a common cullender, is placed inside. This answers the purpose of the dripping-pan as well as the perforated metal. The wooden cover to the shipping case is painted black, to draw the sun's rays. This is then, by means of a stick, held at the angle that will secure the best results. The whole is now complete, and its manner of using is illustrated in the cut. The scraps of wax can now be placed in the cullender over the crock, and in a short time, no doubt, a nice yellow cake of wax will be found in the bottom of the crock. The cakes, if the odd scraps of wax were not too dirty in the first place, will not have to be melted over again in pans, but are just the right size for commerce. The sides of the case being open, the sun will strike the sides of the crock. This, being of a dark color, will draw a good deal of heat. In regard to its working, our friend speaks of it as follows:

> I took the extractor out and set the case right down in the snow. I then put in the wax and left it for some time; but when I went back the wax was all melted and run through the sieve in the crock. I thought that was melting two pounds of wax in a short time, and this for a little money. I think it would be hard to beat, for the lid can be painted black, and used for a reflector, and it adds to the case only the price of a glass 18⅛×12 inches wide, and a sieve and a crock, which almost any one has. I must say I did not think it would melt wax when snow was on the ground.
>
> Washington, Pa., April 8, 1886. HUGH VANKIRK.

I would suggest, that, instead of having the cover painted black, we use a sheet of tin for a reflector, and that, where we do not have any old broken panes of glass large enough, we can slip out one of the sheets of glass in the sides of the case. This is of just the right length, but it is a little narrow. Either a narrow piece of glass can now be fitted in, or the other sheet can be drawn out of the other side, and the two sheets be made to lap easily. The sides vacated by the glass will have to be covered over with strips of boards to hold the heat accumulated. I have no doubt the extractor will work well, and friend V. deserves our thanks.

E. R. ROOT.

SOMETHING FROM PROF. COOK IN REGARD TO PRIVIES, ETC.

THE DRY-DUST ARRANGEMENT AS IT IS USED AT THE GROUNDS OF THE AGRICULTURAL COLLEGE.

THE recent articles in GLEANINGS in reference to privies are certainly called for, and hence are opportune. I think you once described ours briefly. It has been so entirely satisfactory for ten years that I am led to give a description again, and more in detail.

Three things are required in a perfect privy. Convenience, neatness, and safety. Convenience suggests that it be in the house, under the same roof; neatness, that it be always clean and inodorous; safety, that it can not possibly pollute the soil, and through that the well and drinking-water. Ours has fulfilled all these requirements for several years. It is situated in the back corner of the woodshed, three feet from the ground, and on the same level as the kitchen-floor. Old people and children can visit it as easily as they can pass from one room of the house to another.

The vault is the same size as the seat above—15 inches by three feet, and has a solid foundation of brick which extends two feet under ground, and is laid with water-lime. From the ground-level the wall is laid with brick, with an opening on the back side at the bottom, ten inches high, covered by a lattice screen hung on hinges, so as to open upward. A box of pine plank, made to just fit the bottom of the vault, is nine inches high; this is water-tight, and prevents any possible leakage, so that the mason-work below is kept dry, and is in no danger of freezing and cracking. This may be unnecessary; but where health is at stake, it is better to make assurance doubly sure. Typhoid fever is not rare, even in the country. It is thought that it comes from pollution of drinking-water.

The seat, and the special covers to each of its two openings, all hinge at the back, and so can be raised up where they will remain till put down. This makes a neat and convenient gentleman's water-closet, and makes it easy and neat to add road-dust whenever the place is used. At one end of the seat is the door to the dry-dust closet, which is made quite large, and with a slanting floor, so that the dry earth is always at the door. The space just back of the door has a fender, so that the dust will not run out when the door is opened, and this also gives a nice place for the shovel which is used to apply the dry earth. A door outside, nine feet from the ground, enables dry earth to be shoveled into the earth-bin from a cart with ease. A carpet, two or three neatly framed pictures, and a printed sentence on the door which says, " Never leave this room without adding dry earth," makes the neatly plastered room quite a contrast to most places of the kind. Need I say that our children have never thought to mark on the walls, although they have had lead-pencils ever since they could use them? We have never been annoyed with any offensive odor in the wood-shed, even in mid-summer. Indeed, the very location makes it imperative to use such caution that the place will ever be sweet, and so insure thought and painstaking. Two good loads of road dust suffices for the year. Shoveling out the contents, and drawing the useful fertilizer to the fields or garden is not at all offensive if the dry earth has been added properly.

A recent writer in the *New-York Tribune* suggests an improvement to the above. He places a large heavy tin pail under each opening in the seat. This makes it necessary to empty often; but the work is easy, and there is no possible chance to contaminate the soil. In winter, a little hot water poured on to the outside of the pails will loosen the frozen contents. A. J. COOK.

Agricultural College, Mich., Apr. 20, 1886.

Many thanks, friend Cook, for your excellent report and suggestions. I agree, that, as you manage it, nothing can be nicer or more convenient. It was the sight of that pleasant little room that opened my eyes to the fact that it was possible, with so little expense, to make such a very great improvement in these adjuncts to our homes. When I think of those children with their lead-pencils, I feel like saying, " May God bless them, and help them to grow up just such useful members of society as their father and mother are." We gathered road dust one year here at the factory; but we found it quite heavy to shovel and draw around, and I am afraid we got weary in well doing. Somebody has suggested that ashes from the kitchen-stove will do very well when road dust is not at hand. They are lighter to handle, and many times easier of access, even if the resulting fertilizer should *not* be quite according to the teachings of modern science.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAY 1, 1886.

> Whosoever drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall be in him a well of water springing up into everlasting life.—JOHN 4:14.

WE should like reports of the new perforated honey-boards, now that the price is so low as to be in reach of every one.

COMB HONEY AT A BARGAIN.

As the lot of comb honey mentioned on page 329 does not seem to move off very rapidly, we make the price 13 instead of 14 cts. Discounts same as before.

20,000 SECTIONS SHIPPED PER DAY.

THE foreman of the freight department has just informed me that we are shipping sections at the rate of twenty thousand per day, and sometimes as many as 100 hives. Does it not look, friends, as if our goods are giving satisfaction, and that every one is getting ready for a big run of honey?

ANOTHER BEE-JOURNAL.

FROM E. H. Cook, Andover, Ct., comes now a little pamphlet, called *The Bee-Hive*, published every other month, at the insignificant price of 20 cts. a year. Friend Cook is good for all he promises, or, at least, always has been; and as the initial number is worth the 20 cts., without question, we don't see why it shouldn't have a good circulation.

THE AUSTRALIAN BEE-MANUAL.

WE are just in receipt of a new book on bees, bearing the above caption, by Isaac Hopkins, Matamata, Auckland, New Zealand. It is a large work, of 330 pages, and illustrated with 143 engravings. The author seems to take up very thoroughly the scientific and physiological structure of the bee, at the same time setting forth a full elucidation of the practical management and care of an apiary. We presume it is written for and adapted to the climate of Australia, and we are glad to note that the friends of that far-off land have made such progress. We have not had time to examine into the soundness of the author's views on the various subjects, but may give a more extended review of the same soon.

THE PRESENT SEASON.

BEES, as a rule, wintered very successfully, and the month of April has been so far, perhaps, one of the finest for our industry ever known, especially in the Northern States. Apple-trees are now in bloom this 27th day of April, and honey is coming from a great many sources at a pretty fair rate. Bees and queens ought to be plentiful and cheap, if conditions continue to be as favorable as they now are.

HONEY FROM THE WHITE ASH.

On Easter eve, April 25, while passing along the street, toward sundown, my attention was called by such a loud roaring of bees that I commenced an investigation. It came from a tree in a neighbor's yard, and the roar was so loud that I heard it the width of a wide street. It was a large, beautiful, round-topped white ash, and there were more bees on the blossoms than I perhaps ever saw on any other tree at a time. I do not remember to have ever noticed bees on this kind of forest-tree before, and it illustrates what has come up so many times, that almost any tree or plant may yield honey profusely when it so happens that all the conditions are just right for the secretion.

APICULTURE IN CORNELL UNIVERSITY.

We are pleased to learn that Prof. J. Henry Comstock, Professor of Entomology and General Invertebrate Zoology of Cornell University, is making an effort to start a department of apiculture in the college. We presume it is the intention to make it a part of the course of study, under the general head of agriculture. It is to be observed, that Prof. Comstock occupies a position relatively the same as Prof. Cook of the Michigan Agricultural College. With three such able men as Profs. Cook, Comstock, and McLain, the latter of Aurora, Ill., great things are in store for us. Surely the science of apiculture, as indeed a science it is, will not lack for a good scientific backing.

A GOOD COMPOUND MICROSCOPE, FOR A SMALL AMOUNT OF MONEY, FOR BEE-KEEPERS.

We have just received a new lot of microscopes, such as we have been advertising in our price list, for the examination of the eye, sting, etc., of the bee. They are remarkably well finished, and their adjustment is perfect, and they are quite superior to those we have formerly advertised and sold at $2.00. The lenses of these insruments, however, are very clear, and are mounted after the American pattern, which is decidedly a great improvement. I have no hesitation in saying, that, for certain kinds of work, they compare very favorably with the forty or fifty dollar instruments. With it most specimens from the bee will appear to good advantage. It will reveal a wonder to those desiring to look into the intricate mechanism of the bee; and to one who can not afford to invest a very large amount, this, I feel sure, will give excellent satisfaction. Price, complete, packed in a neat mahogany box with dissecting forceps, two glass slips, and two mounted specimens, $2.00; by mail, 15 cents additional. Extra mounted specimens from the bee will be 15 cents each, or $1.50 for a series of a whole dozen.

IN SEASON AND OUT OF SEASON.

In spite of what I said last number about dropping, for the present, the consideration of the wintering problem, quite a number of long articles have since come in on the subject. I know it is quite natural for us to discuss the question just after winter has past, when we feel full of good ideas. No doubt your ideas *are* good, friends, if you have been successful; but just hold 'em in, and jot 'em down in your note-book. When the time comes for us to be thinking about putting our bees in condition for winter, by all means let us have them then. If we discuss wintering during the honey-flow, when our minds are taken up with other things, even if we do read the articles we shall be likely to forget the good hints that they contain. Meantime, as far as possible, let us try to be just in advance of the season. When we are running for comb honey, we all want to know whether any one has discovered a better method than our own. The same may be said of queen-rearing, robbing, and wintering in *its* turn. Several of our contributors are careful to carry out the spirit of the above. Among them I might mention friends Doolittle, Cook, Miller, France, and others.

PERFORATED TIN HONEY-BOARDS.

Several have inquired why we do not make perforated *tin* honey-boards, giving, as a reason, that tin was cheaper. After several experiments with our perforating-machine we have been forced to abandon it as impracticable. We can perforate the tin, but it does not give very good satisfaction. When it leaves the machine it is considerably bowed up in the middle, rendering it unfit for the purposes of a honey-board. The zinc, on the contrary, comes out smooth. At present prices, tin is only a trifle cheaper than the zinc; but as the latter is much more rigid, and makes a cleaner cut, and the former is harder on the dies, and more expensive to perforate, we must give our preference decidedly in favor of the zinc, not only because it is much more satisfactory, but cheaper when cut. However, the tin will answer every purpose when used for the perforated tin separators; i. e., with the oblong hole. Prices, as thus perforated, will be $2.50 per 100, or $22.50 per 1000. By the way,

SHEETS OF PERFORATED ZINC ARE STILL LOWER.

When we were constructing our perforating-machine our intention was to use sheets of zinc 28×96 inches, just enough for 10 honey-boards. When we came to order the zinc we could not at first get sheets longer than 7 ft. We have now succeeded in getting sheets 8 ft. long, as first intended, and the price of these sheets will be $1.50 each; 5 % off for 2 or more sheets; 10 % off for 10 or more. This is the same price as was quoted on the sheets 7 ft. long, but the sheet contains 2⅓ ft. more of the zinc.

UNBOUND PERFORATED ZINC HONEY-BOARDS, CHEAP.

Later.—Our perforating-machine has just learned a new trick, or, rather, our machinists have "tumbled" to a new idea. Said they, "Why can't we make perforated honey-boards without the tin lining, leaving a margin of unperforated zinc instead?" They accomplished this by taking out five of the punches in the center of the great jaws; and by stopping the machine at the proper intervals there will be a good margin around each honey-board. We next take the whole sheet to the squaring-shears, and slice up our honey-boards by the dozen. These boards will not be as rigid as the tin-lined honey-boards, it is true; but might it not be desirable to lift up one end in taking it off the hive, somewhat as you do an enameled cloth? These unbound perforated honey-boards will yield considerably without being bent up. Perhaps there are some who would prefer them to the tin-lined. We can furnish the plain, or unbound honey-boards at 16 cts. each; 10 for $1.50; or 100 for $14.00.

ORDERING HEAVY GOODS BY EXPRESS.

IT seems as if there were more orders this season than ever before for exceedingly heavy goods, and goods that, from the nature of them, we think can not be wanted immediately, to go by express. We have supposed one reason for this is the delays on goods ordered by freight, in consequence of the strikes; but it would be a very great relief to us indeed if our customers would make some explanation in ordering goods to go by express that usually go by freight. Suppose you add to the bottom of your letter something like the following: "I have ordered the above hives in the flat to go by express, knowing that the charges on them will be tremendous. But I would rather pay excessive charges than to stand a chance of not getting them at once." We have for years been in the habit of disobeying orders to the extent of sending goods by freight, even though ordered by express, when we were quite sure the express charges would amount to more than the value of the goods. But it is always risky business to disobey orders. As a rule, we get thanks for using our own judgment in such matters; but sometimes we get a fearful blowing-up, with a bill of damages besides. In the latter case, the man knew what he wanted, and had special reasons for ordering his goods by express; but he omitted to add just two or three little words, telling us he was prepared to pay the charges, whatever they were. Sometimes it may pay a man to order his sections and hives by express, even in the month of April, providing he lives in Florida or Texas, or away south where the bees are swarming; but if a man in York State or Michigan should order sections or hives in the flat, by *express*, we should either say he was not well posted, or else he was out of his head. Now, will you not help us by a little explanation, when you have made up your mind to incur the excessive charges on bulky goods by express, rather than wait for them by freight?

A NEW BOOK BY FRIEND T. B. TERRY.

OUR compositors are now hard at work on this book, entitled, "Winter Care of Horses and Cattle; The Most Humane and Profitable Treatment," and the first 16 pages are already in print. We think the book will be received with more favor than any thing else that has yet appeared from the pen of friend Terry. His plea for kindness and good care toward our domestic animals ranks him side by side with friend Henry Bergh; and friend Terry explains to us how it is that humane treatment puts money into the pockets of the owners of stock. The price will be, bound in paper, 50 cts.; in cloth, 75 cts. If wanted by mail, add 3 cts. postage for the former, and 8 cts. for the latter. We expect to have it ready about July 4th.

THE number of our subscribers is slowly increasing. At this date we have 5522.

LARGE QUANTITIES OF HONEY FROM THE SWAMP-OAK.

THE HONEY AS FINE AS BASSWOOD.

BEES are doing finely here; and of over 200 colonies in this vicinity last fall, there is a loss of only three. All were wintered on summer stands, principally in chaff hives. Bees at this date are gathering large quantities of honey from the swamp-oak. I noticed this morning that they were very busy on a large oak, and upon closer investigation I found that there was a minute drop of honey, clear as crystal, and very thick, adhering to each leaf-bud. Of course, the oak has not yet leaved out, but the buds are swelling, and show a slight green color, and upon each bud was the drop of honey. I took my knife and gathered enough to make quite a large drop, and tasted it, and it had no taste of honey-*dew* or aphis secretion, and in thickness and color it equals basswood, and certainly I never saw *any* basswood produce as much honey as the oak I have mentioned. If it is the work of the aphides, they are so very small that they can not be seen with the naked eye, for I looked very closely, and had others look, and even climbed the tree, and made a very close examination, but failed to find any thing indicative of aphides. The bees are breeding up very fast as the result, and yet do not use nearly all they gather, and in the combs it shows very clear and thick. Now, does the oak always yield honey, and am I just finding it out, or is it only in rare instances that it does so? Will the editor, Prof. Cook, or somebody else, express an opinion? We are very thankful, anyhow, as it comes when most needed; and to see the sheets of solid brood in our hives has a tendency to make a fellow feel happy about his bees, if nothing more.

M. W. SHEPHERD.

Rochester, Lorain Co., O., Apr. 22, 1886.

Friend S., the honey you mention from the oak is probably the natural secretion. It has been written about for years past, although I do not remember that we have had a report before of honey from oak-trees so near our own locality. Neither do I remember of hearing other reports, mentioning that honey was secreted before the tree was in leaf. Former reports mentioned that honey was secreted from the buds just before they opened to produce a blossom. If, as you say, each bud that would produce a leaf yields honey, the matter is still more curious. I am glad to hear so good a report on wintering. Is there sufficient honey from the oak to induce comb-building? and do you find it only on the swamp-oak?

GOOD'S NEW
REVERSIBLE HIVE
all complete, well painted, for $3.00. Sections very low, No. 1, 4¼x4¼x1⅞ or 1¾, at $4.00 per 1000.
9-11d B. J. MILLER & CO., Nappanee, Ind.

HYBRID QUEENS at 40c each; 2 for 75 cts.; 3 for $1.00. T. A. PEW, Middletown, Mont. Co., Mo.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—To exchange foundation for wax.
59db B. CHASE, Earlville, Madison Co., N. Y.

WANTED.—To sell cheap for cash, or will exchange for bees, Root's chaff hives, the D. A. Jones chaff hives, made up or in the flat, wide frames, brood-frames, dovetailed sections, cases, etc.
J. M. KINZIE,
9d Rochester, Oakland Co., Mich.

WANTED.—To exchange Italian bees, brood, and queens, for fdn., beeswax, type-writer, or any thing having a standard market value. 6tfdb
THOMAS HORN, Box 691, Sherburne, Chen. Co., N. Y.

WANTED.—To sell or exchange, farm, 180 acres, good buildings, good sandy soil; also latest improved Steam Thrashing-machine. Either or both at a bargain. Address J. A. OSBUN & SON,
7tfdb Spring Bluff, Adams Co., Wis.

WANTED.—To exchange pure Italian queens for beeswax at 28c per lb. Queens, select, $3.00; warranted, $1.50. Ship wax by freight to Barrytown, N. Y. CORNELIUS BROS.,
7 12 db LaFayetteville, Dutchess Co., N. Y.

WANTED.—To exchange for bees, foundation and pure-bred poultry, also 20,000 Strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale; 75 cents per 100; $4.00 per 1000. W. J. HESSER, Plattsmouth, Neb.
8tfdb

WANTED.—To sell or exchange 100 lbs. of bees, in April and May, for foundation. Sample wanted; 75 cts. per lb., 10 lbs., $6.50. Safe arrival guaranteed. Hybrid queens, 50 cts. now. Prompt attention to all orders. S. H. COLWICK,
8tfdb Norse, Bosque Co., Texas.

WANTED.—To exchange bees (Italian or hybrid) for eggs of Pekin ducks or eggs of Wyandotte fowls, or high-class poultry. Bees are in L. and Simplicity hives. Write for particulars.
8-10db J. H. EBY, North Robinson, Craw. Co., O.

WANTED.—To exchange, eggs of Plymouth Rocks, S. and Rose C. Brown Leghorns, $1.50 per setting. Trio of Plymouth Rocks, trio of Brown Leghorns, 100 yearling hens, Plymouth Rocks and Brown Leghorns, Berry-Crates and baskets, Bee-Hives in the flat, for cash, Italian queens, Bees by the lb., Fdn., Harness, or offers.
Address T. G. ASHMEAD, 9d
Williamson, Wayne Co., N. Y.

WANTED.—To exchange bees and queens for thoroughbred poultry, P. China and Chester W. Pigs, Simplicity and chaff hives, etc. Address
7-9d JNO. W. MARTIN,
Greenwood Depot, Alb. Co., Va.

WANTED.—To sell or exchange. 1000 Simplicity frames of comb, $2.25 for 13, packed in a Simplicity body. ARTHUR TODD, 9tfdb
1910 Germantown Avenue, Philadelphia, Pa.

WANTED.—To exchange a pure-bred Brown Leghorn cockerel for 1 lb. of bees, also will exchange eggs for bees, or will sell at $1.00 per 13. 9d
G. W. SHEARER, Livermore, Pa.

WANTED.—To exchange for bees, side-hill plow, cost $16.00; Wiard plow harrow, feed-cutter, circular saw. ARTHUR TODD, 9tfdb
1910 Germantown Avenue, Philadelphia, Pa.

EGGS.—From choice stock, for hatching. Safe arrival guaranteed. Wyandottes, $2.50 for 13; $4.00 for 26. Houdans, $1.50 for 13; $2.00 for 26. Breeding birds and chicks for sale; or I will exchange for bee-supplies I can use. J. EVANS,
9tfdb Box 89, Schaghticoke, N. Y.

WANTED.—Immediately. 1000 lbs. good beeswax, in exchange for foundation. Wax worked for a share by the pound. Work guaranteed No. 1. Samples free. See ad. in another column. 9-10d
O. H. TOWNSEND, Alamo, Kal. Co., Mich.

WANTED.—To exchange Victoria Red currant-bushes, Crescent strawberry, and Banard's Improved blackberry-plants for Root's Chaff or Simplicity hives, with frames, one-pound sections, fdn., etc., or cash. In sending for terms, please state about what is wanted. THOMAS ELWICK,
9d Decorah, Iowa.

WANTED.—To exchange Brown Leghorn or Plymouth Rock eggs from premium stock, as fine as any in the U. S., to exchange for bees or supplies, or sell at 75 cts. for setting. H. C. SILVER, 9-10d
Huntington, Ind.

WANTED.—To sell or exchange, Wilson, Crescent, or Sucker State strawberry-plants at $1.50 per 1000, for Italian queens, Wyandotte fowls or eggs.
9d M. D. HEWITT, Farina, Fayette Co., Ills.

WANTED.—To exchange new Novice honey-extractors for A. and L. frames; will exchange for a bone-grinder, or good books, or any thing useful. GEO. W. BAKER, Milton, Ind. 3-5-7-9-11-13d

WANTED.—To exchange Brown Leghorn eggs, for hatching, for light comb foundation. 7-9d
C. M. GOODSPEED, Thorn Hill, N. Y.

WANTED.—To exchange pure Brown Leghorn eggs at 75 cts. for 15; 45 eggs, $2.00; 100 eggs, $4.00, for foundation. Cash preferred.
8-9d R. J. NASH, Williamson, Wayne Co., N. Y.

WANTED.—To sell or exchange Strawberry-plants, Crescent Seedling, Sharpless, Manchester, Chas. Downing, Mt. Vernon, and Longfellow. Per dozen, by mail, postpaid, 25 cts.; by express, per 100, 50 cts.; per 1000, $2.50. J. A. GREEN,
8-9d Dayton, La Salle Co., Ill.

WANTED.—To exchange or sell. *Eggs for hatching*, from 3 varieties of high-class fowls, selected stock, costing from $12 to $20 per pair. Brown Leghorns, Silver-Spangled Hamburgs, and Plymouth Rocks. Eggs, per setting of 13, $2.00. Fowls for sale. Address A. H. DUFF,
8tfdb Creighton, Guernsey Co., Ohio.

WANTED.—Persons in need of stationery to send 28c, 35c, or 40c for 100 envelopes or note-heads, neatly printed to order. Address
9d HERBERT BRICKER, State Lick, Pa.

WANTED.—To exchange, tested Italian queens, reared last fall, at $2.00 each, for thin fdn., not less than 10 sq. ft. to the pound.
9tfdb G. D. BLACK, Brandon, Iowa.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I shall have a limited number of hybrid queens for sale during May, June, and July, at 50c each.
LOUIS WERNER, Edwardsville, Ill.

Friends, I have 5 black queens that I will take 25c each for; and 6 Hybrid queens for which I will take 50c each during the latter part of this month.
A. E. JOHNSON, Clarkton, N. C.

W. P. Davis, of Goodman, N. C., will sell hybrid queens during the months of May and June, three for one dollar. Parties return same at my expense, if not satisfied. W. P. DAVIS.

Two black queens at 25c each; 3 hybrids at 40c, and about 10 mismated queens at 50c each.
G. D. BLACK, Brandon, Iowa.

I have three black queens I wish to sell, 35 cts. each. Will be ready the first week in May.
F. P. HISH, Henton, Shelby Co., Ills.

For sale, 12 young mismated Italian queens, G. M. Doolittle stock; wings all clipped. Price 50c each. Will ship at once. L. L. HEARN,
Frenchville, Mercer Co., West Va.

ONE-PIECE
SECTIONS
and REVERSIBLE HIVES, Specialties.
Sections smooth on both sides, at $3.50 per 1000.
Circular free. B. WALKER & CO.,
9tfd CAPAC, ST. CLAIR CO., MICH.

BEE-HIVES,

One-Piece Sections, Section Cases, Frames, &c.,
OF SUPERIOR WORKMANSHIP, FROM
SMITH & GOODELL,
Manufacturers of and Dealers in
APIARIAN SUPPLIES,
ROCK FALLS, WHITESIDE CO., ILL.
3tfd *Send for Price List.*

SPECIAL BY TELEPHONE.

"Hello! Hello!"

"Well, what do you want?" "Simply to inform you that, if you want to purchase the finest Italian and Albino **Bees** and **Queens** in the world, try **F. Boomhower,** of Gallupville, N. Y. He has them at extremely low prices. Send for his circular. All right. Good-bye." 7-9d

SUMNER & PRIME,

BRISTOL, ❊ VERMONT.
—MANUFACTURERS OF—

Bee-Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and samples free.
1-2tfdb

QUICK SALES, SMALL PROFITS.

The 3d edition of "Handy Book, or Queen-Rearing," 300 pages, 100 illustrations, bound in cloth, by mail.......................................$1 10
Book, and sample of *latest* improved drone and queen trap, by mail.............................. 1 50
Book and tested queen, any race (from June 1 to Oct. 1) by mail.. 2 00
Book and warranted queen, any race (from June 1 to Oct. 1) by mail...................................... 1 75

Money-order office, Salem, Mass. Postage-stamps will do for odd change. Send for circular.
7tfdb HENRY ALLEY, Wenham, Mass.

BEES BY THE POUND,

AND UNTESTED QUEENS A SPECIALTY.

One pound of Bees, $1.00. Queens, $1.00 each. Express charges prepaid on orders of 10 lbs., to any part of the United States except California and Oregon. Write for discount on large orders. Orders from dealers for a weekly delivery of queens solicited. Safe arrival and satisfaction guaranteed. Make money orders, drafts, etc., payable at Baton Rouge, La. JOS. BYRNE,
7tfd WARD'S CREEK, EAST BATON ROUGE PAR., LA.

J. P. CONNELL,

HILLSBORO, HILL CO., TEX.,

Makes a specialty of rearing pure Italian queens, and of shipping bees in two, three, and four frame nuclei. Tested queens in March and April, $2.50; after, $2.00. Untested queens in April, $1.25; after $1.00. Satisfaction guaranteed. 67911d

SEND FOR CIRCULAR.

Western BEE-KEEPERS' Supply House.

We manufacture Bee-Keepers' supplies of all kinds, *best quality* at *lowest prices*. Hives, Sections, Comb Foundation, Extractors, Smokers, Crates, Honey Buckets Veils, Feeders, Bee-Literature, etc., etc. Imported Italian Queens, Italian Queens, Bees by the lb., Nucleus or Colony. **"Bee-Keepers' Guide, Memoranda and Illustrated Catalogue" of 48 pages FREE** to Bee-Keepers. Address
JOSEPH NYSEWANDER,
DES MOINES, IOWA.
7tfd

Italian Bees. I am compelled to reduce my stock of bees, and will sell full colonies and nuclei VERY CHEAP. *Satisfaction guaranteed.* **E. A. GASTMAN,** Decatur, Ill. 911db

WANTED. All parties wanting Berry Crates, Berry Baskets, Bee-Hives, and other supplies, to send for circulars, to
9d T. G. ASHMEAD, Williamson, Wayne Co., N. Y.

THE

Apicultural Establishment

OF

F. J. DOKOUPIL,

In Vigaun, Upper Carniola,
Austria, Europe,

Send QUEENS postpaid. Safe arrival and purity of breed guaranteed.

Price each in German Reichsmark.

	Apr.	May.	Jun.	Jul.	Aug	Sep	Oct
Carniolan Queens, Native,	8	7	6	5	5	4	4
Italian Queens, Native,	9	9	8	7	7	6	6
Cyprian or Syrian Queens, Native,	20	20	20	20	18	18	18
Cyprian or Syrian Queens, bred in Carniola,	12	12	11	11	10	10	10

579db

ITALIAN BEES IN IOWA.

60 c. to $1.00 per lb. Queens, 30 c. to $2 50. Order from new circular, sent free. 6tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

PURE ✣ ITALIANS ✣ EXCLUSIVELY.

STOP, ❊ READ, ❊ AND ❊ ORDER.

Having determined to devote my time and attention exclusively to the production of pure Italian bees and queens, during the season of 1886, I offer, in order to reduce stock, **50 Choice Colonies of Pure Italians** in 10 Langstroth frames, guaranteed to contain at least 4 full frames of brood and 4 lbs. of bees in new chaff hive, at $10.00 each. I append my prices for the season.

My terms are cash with the order. First orders will be filled first. I will refund money at any time a customer may become dissatisfied with waiting.

My methods: One kind, and the best of that kind. Nothing except tested queens sold at any price. I will send one-year-old queens until stock is exhausted, and then this season's hatch. I will commence to send, about May 1st.

1 tested queen	$1 00
1 pound of bees	1 00
1 frame of brood and bees	1 00

1-frame nucleus, tested queen	$2 00
2 " " " "	3 00
3 " " " "	4 00
4 " " " "	5 00

In lots of 5, five per cent discount; in lots of 10, ten per cent discount. In lots of 10 or more nuclei or pounds of bees, I will pay express charges for the first 1000 miles. Now remember, I guarantee safe arrival and absolute satisfaction in all cases. Sample of live workers free by mail. Capacity, 25 queens per day after May 1st.

THOMAS HORN.
6tfdb **BOX 691, SHERBURNE, CHENANGO CO., N. Y.**

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4-3db

ITALIAN QUEENS AND NUCLEI. Prices in February and March GLEANINGS.
7-10db ANNA M. BROOKS, Sorrento, Fla.

SCALE and MIRROR CARP for sale by the 100 or 1000. A fine lot of spawners now ready for shipment. 7-8-9d W. L. McINTIRE, Mt. Vernon, O.

HORN PAYS EXPRESS CHARGES SEE ADVERTISEMENT.

O **The BUYERS' GUIDE is issued March and Sept., each year. ☞ 280 pages, 8½ x 11½ inches, with over 3,500 illustrations — a whole Picture Gallery. GIVES Wholesale Prices** *direct to consumers* **on all goods for personal or family use. Tells how to order, and gives exact cost of everything you use, eat, drink, wear, or have fun with. These INVALUABLE BOOKS contain information gleaned from the markets of the world. We will mail a copy FREE to any address upon receipt of 10 cts. to defray expense of mailing. Let us hear from you. Respectfully,**

7-12db

MONTGOMERY WARD & CO.
227 & 229 Wabash Avenue, Chicago, Ill.

BEES IN IOWA. SEE FOSTER'S ADVERTISEMENT.

Y&.. WYANDOTTE FOWLS, ITALIAN BEES, QUEENS, and SUPPLIES. Send for Price List. **BB**
W. H. OSBORNE, CHARDON, OHIO.
5-11db

1886 NORTHSHADE APIARY, 1886

PRICES GREATLY REDUCED.

Full colonies of Italian bees for spring delivery. Nuclei, queens, and bees by the pound for the season. Comb foundation for sale. Wax worked by the pound or for a share. Fdn. samples free. Price list ready. **O. H. TOWNSEND,**
6tfdb **Alamo, Kal. Co., Mich.**

BEES, Full Colonies, Hybrids and Italians, for sale, in Simplicity and Adair hives. I guarantee safe arrival by express. Write how many you want, and for prices. H. M. MOYER,
7-9db Hill Church, Berks Co., Pa.

VANDERVORT

COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

FOR SALE CHEAP.

Having bought an interest in A. F. Stauffer's supply establishment, to which I will devote my entire time, I will sell my apiary of

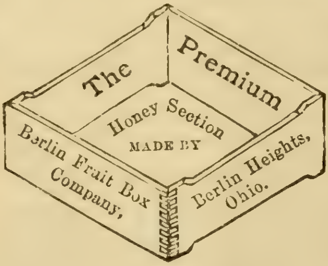
50 Colonies of Hybrid Bees, Cheap.

For further particulars, address
7-9db **J. G. SEIDEL, Sterling, Illinois.**

WANTED.

Names of parties wanting first-class dovetailed honey-sections, to whom samples will be sent on receipt of address. Also crates in season. A perfect iron section-box former sent for $1.00, and satisfaction guaranteed. **Geo. R. Lyon,**
4-9db GREENE, CHENANGO CO., N. Y.

FOR SALE.—40 colonies of my improved strain of pure Italian bees in two-story chaff hives, @ $7.00; in single-walled hives, 1½ story @ $6.50; 50 two-story chaff hives, including frames and crates, @ $1.50; 50 single-walled hives, frames and crate, @ .90. Hives have tin roof. 1 honey-ext. for L. frame, $3.00. A wax-ext., $1.00. Must be sold immediately. 7tfdb
GEO. F. WILLIAMS, NEW PHILADELPHIA, O.



To all who wish to use the best honey-sections, V-groove, and which fold without breakage, we say, *try ours.* Prices reasonable, and liberal discount on large orders. Send for prices of both apiarian supplies and fruit-boxes. Address as above.
7-8-9d

SOUTHERN HEADQUARTERS

FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address
5tfd **J. P. H. BROWN, Augusta, Ga.**

FOR SALE, 100 THREE-FRAME NUCLEUS HIVES.

Italian bees, ready for shipping by the 5th day of April, 1886. Address D. O'ROURKE,
8-9d Selma, Dallas Co., Ala.

NOTICE THE LOW PRICES ON

Bees, Brood, Queens, Plants, Etc.,

IN MY NEW CIRCULAR. PLEASE WRITE FOR ONE.

C. WECKESSER.
5-10db **Marshallville, Wayne Co., Ohio.**

SEND FOR FREE SAMPLES OF FOUNDATION
TO C. W. PHELPS & CO., TIOGA CENTRE, N. Y.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

125 STOCKS OF BEES FOR SALE.

Mostly Italians. These bees must be sold, and will be sold cheap. All in Quinby frames. Sold with or without hives. Send for prices of Italians, hybrids, and blacks. Address
WM. E. CLARK,
7-10db Oriskany, Oneida Co., N. Y.

Pure ITALIAN BEES and QUEENS FOR SALE.

QUEENS BRED FROM IMPORTED STOCK.

Untested queen, just commencing to lay, - $1.00
Furnished by the 10th of May.
Tested, $2.00. Select tested, $2.50. Furnished by the 16th of May.
One-half pound bees, 90c. Furnished after the 1st of April. Cage included.
Two-frame nucleus, consisting of ½ lb. of bees, 90c, two frames partly filled with brood, 90c, and one nucleus hive, 40c. Total $2.20; guaranteed.

All bees, queens, and nuclei are to be safely delivered at your nearest express or postoffice, you paying all express charges. Order early. First ordered, first served. **C. F. UHL,**
7-9d Millersburg, Holmes Co., O.

20 Colonies of Bees For Sale.

I will sell twenty colonies of bees in the A. I. Root two-story chaff hive, combs straight, on wired frames, with metallic corners, all in good condition. Hives are as good as new, and well painted, for $10.00 per colony. Address J. REYNOLDS,
8-9d Clinton, Kennebec Co., Maine.

15 PLYMOUTH-ROCK EGGS by express for $1.00.
579d S. A. DYKE, Pomeroy, Ohio.

ITALIAN QUEENS

From imported and best tested queens, $1.00 each. Tested queens, $1.75. Raised in full colonies. Bees, per lb., 90 cts.; 6 lbs. for $5.00, in wire-cloth cages; 80 colonies to draw from. Safe arrival guaranteed. Pure-bred Plymouth Rock, White and Brown Leghorn eggs, 13 for $1.00. Spider-plant seeds by mail, $1.30 per lb.; 15 cts. per oz. 7-9d
W. A. SANDERS, Oak Bower, Hart Co., Ga.

HAVING moved my large queen-rearing apiary from Lewisville to Milton, I will still furnish pure Italian bees and queens in any quantity and shape. Those wanting to start apiaries should write for prices. I also will furnish eggs from California bronze turkeys, at $1.50 per sitting of 9.
3-19d GEO. W. BAKER, Milton, Ind.

BE SURE

To send a postal card for my catalogue of **Albino and Italian Queen-Bees,** and see what my customers say about them, before purchasing elsewhere. Address D. A. PIKE,
5-7-9d SMITHSBURG, WASH. CO., MD.

QUEENS UNEXCELLED.

From Mr. Benton's best imported mothers, very low. Send for circular to
8tfdb S. F. REED, N. Dorchester, N. H.

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

PURE ITALIAN BEES.

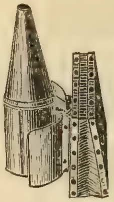
Full colonies, nuclei, bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. ☞ Send for my circular and price list. You will save money by so doing. C. M. DIXON,
4-11-db PARRISH, FRANKLIN CO., ILL.

ALL PROGRESSIVE BEE-KEEPERS

Suffer for my price list of Bee-keepers' Supplies of all kinds. Send for price list and be convinced.
J. W. BITTENBENDER,
4-9db KNOXVILLE, MARION CO., IOWA.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3btfd

1000 LBS. OF BEES OR SALE.
See GEDYE'S advertisement. 8-12db



BINGHAM SMOKERS LAST AND PLEASE.

BORODINO, N. Y., Aug. 15, 1882.

All summer long it has been "which and t'other" with me and the Cyprian colony of bees I have—but at last I am *boss;* Bingham's Conqueror Smoker did it. If you want lots of smoke just at the right time, get a Conqueror Smoker of Bingham. G. M. DOOLITTLE.

INDEPENDENCE, CAL., Jan. 2, 1886.

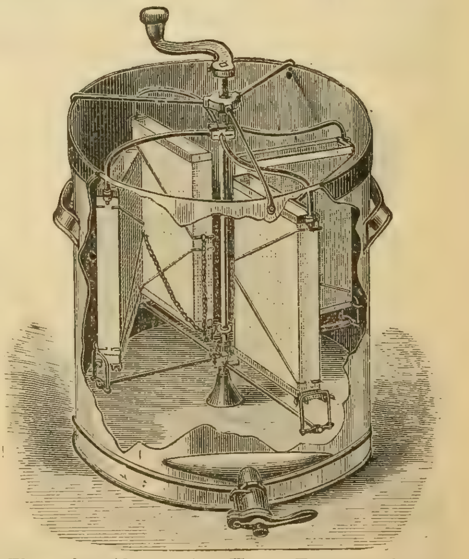
Messrs. Bingham & Hetherington:—Dear Sirs:—

The "Doctor" came to hand last night in good order. "It is a Daisy." Won't the little pets wink their eyes when they get some of his medicine? I have one of your "Large" smokers, which has been in use six years.

Respectfully yours, WM. MUTH-RASMUSSEN.

Bingham Smokers and Knives sent per mail, postpaid, at 65 cts. to $2.00. Send for free circular to
51fd **BINGHAM & HETHERINGTON, ABRONIA, MICH.**

STANLEY'S AUTOMATIC HONEY-EXTRACTOR.



The only self-reversing Honey-Extractor known. Will do double the amount of work of any other extractor. Send for new circular, just out April 1st. Californians, send to Baker & Barnard, San Buenaventura, Ventura Co., Cal. Canadians, send to E. L. Goold & Co., Brantford, Ont., Can.
All others, address G. W. STANLEY,
8tfdb Wyoming, N. Y.

Californians.—Good live men to act as sub-agents in the different counties of Cal. Parties wishing to become agents, or to manufacture the Automatic extractor can address Baker & Barnard, San Buenaventura, Cal., or G. W. Stanley, Wyoming, N. Y. This is a good chance for those who want to make and sell our machines.

Look! Honey-Comb Foundation! Look!

FRIENDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills. Discounts on early orders. Send for free samples and prices. Strawberry plants, grape roots, and Italian queens at reasonable prices. We will allow 10 % discount until May 15th, and 5 until June 1st on fdn. Address
C. W. PHELPS & CO.,
8tfdb TIOGA CENTRE, TIOGA CO., N. Y.

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STANLEY'S DOLLAR SMOKER.

A large strong bellows Smoker, with 3 in. barrel, and equal to any smoker in the market, for only $1.00, or $1.25 by mail. Can be sent immediately.

SPECIAL OFFER UNTIL MAY 25TH.

Every person who purchases a 4-frame Automatic Honey-Extractor before May 25th, and sends cash with order, will receive a smoker *free*.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have about one dozen hybrid queens for sale at 25c each. Good and prolific. M. BROERS,
Gonzales, Gonzales Co., Texas.

Ark. Brown and hybrid queens 20 to 40 cts. each.
F. C MORROW, Wallaceburg, Ark.

Black queens, 25c until June.
WALTER B. FISHER, Uvalde, Uvalde Co., Texas.

Hybrid queens at 40 cts. from May 20th.
J. G. COBB, Mount Cobb, Pa.

75 black and a few hybrid queens left for sale, at 25 and 35c each. All clipped. Safe arrival guaranteed by return mail. L. T. AYERS,
Box 175, Kankakee, Kankakee Co., Ills.

I have some 10 or 12 black and hybrid queens to sell, after the 18th inst., at 25 and 35c each.
J. C. ZIMMERMAN, Wabash, Wabash Co., Ind.

Black and hybrid queens for sale at the usual rates. GEO. D. RAUDENBUSH, Reading, Pa. 10d

Hybrid queens must go. In order to rid my apiaries of the last vestige of black blood, I offer 6 good hybrid queens (all that I have) at 40 cts. each, or $2 00 for the lot. Speak quick, for I will kill them if not called for soon. Address
J. C. BOWMAN, North Lima, Mahoning Co., Ohio.

F. HOLTKE'S 3-FRAME NUCLEI, WITH $1.00 QUEEN, FOR ONLY $2.00!

Three-frame nuclei, with $1.00 queen, from 15th of May on, $2.00. Combs built in Simplicity frames, and well stocked with bees and brood. 10-11-13d
Fred'k Holtke, Carlstadt, Bergen Co., N. J.

Batchelder's Drone and Queen Trap

Is the only one made that does not hinder the bees in their work. Send 85 cents for sample. Send for circular, and see what A. I. Root says about it.
10tfdb **J. A. BATCHELDER, Keene, N. H.**

SECTIONS

AT HARD-PAN PRICES. V-groove or square cut. Samples free; also chaff hives, Root's pattern; Dunham comb-foundation and apiarian supplies of all kinds. Write, stating what you want, and I will quote you rock-bottom prices. Circular free. 8tfdb **EZRA BAER, Dixon, Lee Co., Illinois.**

PURE ✳ ITALIANS ✳ EXCLUSIVELY.

STOP, ✳ READ, ✳ AND ✳ ORDER.

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THOMAS HORN,
8tfdb BOX 691, SHERBURNE, CHENANGO CO., N. Y.

KENWARD-HALL APIARY.

Thanking our friends for their large orders, March and April, we assure them that we shall try to merit all orders in the future. 200 nuclei. Our queens imported by ourselves. Price $1 00; ½ doz., $5.00; 1 doz , $10 00. Tested, $2.00 and $3.00. Special rates to dealers.

J. W. K. SHAW & CO.,
8-10db **Loreauville, Iberia Parish, La.**

LOOK HERE.

Untested queens, only 75 cents each. 6, 70 cents each; 10, 60 cents each. **M. S. ROOP,**
9d **Council Bluffs, Iowa.**

ITALIAN & CARNIOLAN QUEENS.

Bred in separate apiaries, away from other bees. Warranted Italian or untested Carniolan queens, in May, $1.25; 6, $6 75; June, $1.10; 6, $5 90; July, $1; 6, $5. State which you prefer, Italians bred from my *Bellinzona strain*, or *Golden Italians*. I am prepared to please all.

BEES AT REDUCED RATES.

For full particulars, and prices of tested queens, bees, etc., send for circular and price list. Satisfaction guaranteed. **CHAS. D. DUVALL,**
9tfdb **Spenceville, Mont. Co., Md.**

READY, READY, READY.

100 nucleus colonies will be ready by the 15th or 20th of May, 3, 4, and 5 frames, at $4.00, $5.00, and $6.00; all with good laying untested Italian queens. They will all have plenty of bees, brood, and honey. Queens and full colonies for sale.
9 10d LOUIS WERNER, Edwardsville, Ill.

QUEENS UNEXCELLED.

From Mr. Benton's best imported mothers, very low. Send for circular to
8tfdb S. F. REED, N. Dorchester, N. H.

BEES IN IOWA. — SEE FOSTER'S — **ADVERTISEMENT.**

PURE ITALIAN BEES.

Full colonies, nuclei, bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. ☞ Send for my circular and price list. You will save money by so doing.
C. M. DIXON,
4-11-db PARRISH, FRANKLIN CO., ILL.

1000 LBS. OF BEES FOR SALE. See GEDYE'S advertisement. 8-12db

Look! Honey-Comb Foundation! Look!

FRIENDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills. Discounts on early orders. Send for free samples and prices. Strawberry plants, grape roots, and Italian queens at reasonable prices. We will allow 10 % discount until May 15th, and 5 until June 1st on fdn. Address

C. W. PHELPS & CO.,
8tfdb TIOGA CENTRE, TIOGA CO., N. Y.

DUNHAM AND VANDERVORT FOUNDATION

We have a large stock of choice yellow beeswax, and can furnish Dunham comb fdn. for brood comb, cut to any size, for 40c per lb. Extra thin Vandervort foundation, 46c per lb. We guarantee our fdn. to be made from pure beeswax, and not to sag. Will work up wax for 10c per lb., and 20c per lb. for section. **F. W. HOLMES,**
4tfdb Coopersville, Ottawa Co., Mich.

QUEENS. 1886. QUEENS.

Reared from Imported Mothers. Two, three, and four frame nuclei. Safe arrival and satisfaction guaranteed. Send for price list. Address
5-11db FRANK A. EATON, BLUFFTON, OHIO.

SOLD

Having sold the 100 colonies of **Bees** offered in the March Nos. of this journal, I am now booking orders only for

NUCLEUS COLONIES AND QUEENS. ALSO BEE-KEEPERS' SUPPLIES.

Send for 1886 price list. Address
7tfdb WM. W. CARY,
Successor to Wm. W. Cary & Son. COLERAINE, MASS.

LEWIS V-GROOVE

ONE-PIECE SECTIONS

Down, Down, Goes the Price.

First Quality, White Basswood, One-Pound Sections, In lots of 500 to 3000, $4.00 per 1000.

SPECIAL FREIGHT RATES.

If 3000 or more are wanted, write for special prices, delivered to you, freight paid by us.

C. B. LEWIS & CO., 9tfdb
April 15, 1886. **Watertown, Wisconsin.**

BARRELS! OAK; hold 50 galls.; steam-tested, and equal to the best, at the following prices, each: 1 barrel, $2.50; 2, $2.40; 3, $2 35; 4, $2.30; 5, $2 25; 6, $2.20; 7, $2.15; 8, $2.10; 9, $2.05; 10, $2.00. No further reduction for less than twenty. GEO. H. HOYLE, Mobile, Ala. 9-10d

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db
A. F. STAUFFER & CO., Sterling, Ills.

BEES IN IOWA. — SEE FOSTER'S — **ADVERTISEMENT.**

PURE ITALIANS.	May	June 1 to 18	June 21 to Oct. 1
Tested queens	$2 50	$2 25	$1 75
Untested queens		1 25	1 00
Bees per pound	2 00	1 50	1 00
Nuclei per comb	90	65	50

All communications promptly responded to, and all questions cheerfully answered.
8-13db **S. C. PERRY,** PORTLAND, IONIA CO., MICH.

1886 Golden Italian Queens. 1886

Our bees won first prize at the St. Louis Fair over several worthy competitors in Oct., 1885.

Extra tested queens, 2 years old $3 50
" " " 2 00
Untested, " after May 15.. . ... 1 00

We will also dispose of 50 full colonies at the following low price, in one-story Simplicity hives:

One colony, with tested queen $8 00
" " " untested queen 6 50

Five or more, 10 per cent discount.

Delivered at R. R. station, and safe arrival guaranteed. Send for circular.

DARROW & ROSS,
8 10db **Lebanon, St. Clair Co., Ill.**

1000 Lbs.

BEES FOR SALE.

Here I am for the spring of 1886, with 1000 LBS. OF HYBRID BEES for sale by the pound. Bees $1.00, and queens 50 cts. in May; bees $1.00 and queens 35 cts., after the 10th of June. All express charges paid by me in the United States and Canada. Safe arrival guaranteed. Orders received first will be filled first. Remember, I can not fill all in one day. Order early, and avoid delay. No order will be booked without the money. Money returned when required. I have no circular. Inclose stamp when you want a reply. I will start to ship on the 15th of May, weather permitting.

THOMAS GEDYE,
8-12db **La Salle, La Salle Co., Ill.**

BEAUTIFUL FOUNDATION

And very choice all-in-one-piece **SECTIONS**, V-groove — wholesale and retail, and exceedingly cheap. Send for Samples and Free Price List of every thing needed in the apiary. 9tfdb
(Near Detroit.) M. H. HUNT, Bell Branch, Wayne Co., Mich.

WESTERN ILLINOIS MODEL POULTRY & BEE YARDS. Premium and imported stock; also Apiarian supplies. Catalogue free. 8-12d L. HORNING, Prop., Malvern, Ill.

BEE-KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, 48 pages; FREE to all bee-keepers sending address to
8tfd JOS. NYSEWANDER, Des Moines, Iowa.

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd **Hartford, Washington Co., Wis.**

MY 18TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
10 11tfd *H. H. BROWN, Light Street, Col. Co., Pa.*

Italian Queens sent by Mail.

Untested queens from imported mother, April, $1.25; May, June, and July, $1.00. After April, per half-dozen, $5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

Foundation-Mill For Sale.

One nine-inch Dunham mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $20.00. The list price of a new mill of this kind is $40.00. **A. I. ROOT, Medina, O.**

HEADQUARTERS IN THE SOUTH

FOR THE MANUFACTURE AND SALE OF

BEE-KEEPERS' SUPPLIES.

The only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, etc. The Viallon and Root Simplicity Hives a Specialty.

ITALIAN QUEENS,

Untested, in April, $1.25 each; $13.00 per doz. From May 5 to June 1, $1.10 each, $12.00 per doz. After June 1, $1.00 each, $10.00 per doz. Tested, $2.50 each; select tested, $3.00 each to first of June. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

With pure Italian queen, containing 3 pounds of bees when received; in April, $4.00; after May 25, 25 cts. less. Safe arrival and satisfaction guaranteed.

BEES BY THE POUND,

Delivered, express prepaid, in lots of 5 pounds or more. Send for price. Same discount given as offered by A. I. Root, in GLEANINGS from month to month. For more particulars, send for catalogue for 1886. **P. L. VIALLON,**
7tfdb **Bayou Goula, Iberville Parish, La.**

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

VIRGINIA LAND AGENCY.

Cheap Farms. Splendid climate. Short Mild Winters. Good Markets. Descriptive Land List Free.
6-11b GRIFFIN & JERVIS, PETERSBURGH, VA.

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

HORN PAYS EXPRESS CHARGES SEE ADVERTISEMENT.

ITALIAN QUEENS, untested, May and June, $1.00; six for $5.00; after July 1st, 85c each; six, $4.50; 2-fr. nucleus, untested queen, June, $2.75; after July 1, $2.25. Send for price list of bees by the pound, fdn., etc. JOHN NEBEL & SON, High Hill, Mo.
7-12db

SUPPLIES!

HIVES, SECTIONS, CASES, CRATES, ETC. COMB FOUNDATION, ITALIAN BEES AND QUEENS, BRED FOR HONEY-GATHERING.

Wax wanted. Send for free Catalogue to
6tfd REYNOLDS BROS., WILLIAMSBURG, WAYNE CO., IND.

SYRIAN AND ITALIAN QUEENS,

Before June 15, tested, $2.50 each; after, $2.00 each. Untested, before June 15, $1.00 each; after, single queen, $1.00; six for $5.00; twelve for $9.00.
6tfdb **ISRAEL GOOD, Sparta, Tenn.**

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—Demand for all grades light, with a very light stock of comb in the city. Extracted dull and very low. With the low freights from California, our trade has been well supplied.

One-pound sections, choice,	16
“ “ “ dark,	12@14
Two “ “ choice,	12@14
“ “ “ dark,	9@10

Extracted, from 3½ to 6 cents. *Beeswax*, 23c.
May 11, 1886. CLEMONS, CLOON & CO.,
Cor. 4th & Walnut St's., Kansas City, Mo.

CHICAGO.—*Honey.*—The supply of comb honey is fully up to demand, unless it is for fancy one-pound sections (without glass), which brings 15@16c. Two-pound sections, 10@12c, slow of sale. The demand for extracted is very light, at unchanged prices. *Beeswax*, in larger supply at 23c. R. A. BURNETT,
May 10, 1886. 161 S. Water St., Chicago, Ill.

CINCINNATI.—*Honey.*—There is no new feature in the market. Demand fair for extracted honey for table use, but exceedingly dull from manufacturers. Prices are unchanged and nominal. Prices of comb honey are nominal, and but little on the market. We sell at 14@15c a lb. for choice, in the jobbing way. *Beeswax.*—There is a good home demand. Good to choice yellow brings 20@22c. on arrival.
May 11, 1886. C. F. MUTH & SON,
S. E. Cor. Freeman and Central Avenues,
Cincinnati, Ohio.

ST. LOUIS.—*Honey*.—We have no features to note in our honey market, except dullness. Demand is very light, prices quotably unchanged—any way, not improved. W. T. ANDERSON & CO.,
May 11, 1886. 104 N. 2d. St., St. Louis, Mo.

MILWAUKEE.—*Honey.*—Market here seems quite dull; the demand is very limited, and the supply not very large. Values continue unchanged.

Choice white 1-lb. sections,	17@18
“ “ 2-lb. “	16@17
“ dark 2-lb. “	15@16
Extracted, in kegs or tin, white,	8@8½
“ “ “ dark,	6@7

Beeswax, 25c. A. V. BISHOP,
May 11, 1886. 142 W. Water St., Milwaukee, Wis.

DETROIT.—*Honey.*—There is no honey left in commission houses, and but little in the hands of retail dealers. New honey will find the market bare. Best comb, in 1-lb. boxes, 14c. *Beeswax*, scarce @25c.
May 11, 1886. M. H. HUNT,
Bell Branch, Mich.

CLEVELAND.—*Honey.*—Our market continues good for best 1-lb. unglassed sections, which bring 14@15 cts. readily on arrival, 2-lbs. are dull at 12@13 cts. Glassed sections sell slowly at 12c. Extracted, 7@8. *Beeswax*, scarce at 25@28. A. C. KENDEL,
May 8, 1886. 115 Ontario St., Cleveland, Ohio.

BOSTON.—*Honey.*—No change in price of honey. Sales very light. BLAKE & RIPLEY,
May 11, 1886. 57 Chatham St., Boston, Mass.

HONEY-JARS.
Buckets and Tumblers of Crystal Glass
CORKS, TIN-FOIL CAPS, ETC.
Best Quality, at Lowest Prices.
Address for Prices, etc., **TYGARD SONS,**
10d **2119 S. Jane St., Pittsburg, Pa.**

QUEENS.
I have them, bred from a best selected queen of Root's importation, 90 cts. each; 6 for $4.50. I can give all orders immediate attention, and ship by return mail. Send postal for dozen rates.
10tfdb **B. T. BLEASDALE,**
596 Woodland Ave., Cleveland, Ohio.

HILL-SIDE APIARY.
ITALIAN BEES AND QUEENS, BEES BY THE POUND, NUCLEUS, OR FULL COLONY.
Send for Circular to
W. B. COGGESHALL, Supt.,
Summit, Union Co., N. J.

For Sale. A bargain for some one. 320 acres of land in Reynolds Co., Mo., only 12 or 15 miles from Iron Mountain R. R. Well covered with pine timber, never having had a tree cut on it. Taxes less than $5.00 per year. Will sell for $10.00 per acre. 10d J. S. WARNER, MEDINA, O.

Stanley's AUTOMATIC HONEY-EXTRACTOR AND DOLLAR SMOKER.
Special Offer. See Advertisement in another column.

FOUNDATION, 6 SHEETS FOR L. FRAME, 35C. PER LB.
W. T. LYONS, Decherd, Tenn.

LOW COST HOUSES
HOW TO BUILD THEM
A large Atlas, giving cuts and full descriptions of 40 *desirable* **modern houses, costing from $400 up to $6,000.** *Profusely illustrating every detail* **and many original ideas. Houses adapted to all climates described. The latest, best, and only cheap work published. Sent by mail, postpaid for 50c. in stamps. FRANKLIN NEWS CO., PHILADA**

EXPRESS PREPAID upon EGGS FOR HATCHING from our premium stock of Fowls. Send for price list. Satisfaction guaranteed. Ref. A. I. Root.
9d BOSTWICK & ASHLEY, Medina, Ohio.
P.S.—4 in. German Carp, $5.00 per 100, F. O. B. here.

CONVENTION NOTICES.

The Madison County (N. Y.) Bee-Keepers' Association will hold a semi-annual meeting in the parlors of the Eagle Hotel at Oneida, N. Y., on Wednesday, May 26. The meeting will be called at 10 o'clock A. M., sharp. All interested in bees or honey are invited to attend. All apicultural goods sent for exhibition will be carefully looked after by the officers of the association. F. S. SMITH, Pres.

The date for the next meeting of the N. A. B. A. has been fixed for the 12, 13, and 14 of October next.
Indianapolis, Ind. F. L. DOUGHERTY, Sec.

CIRCULARS RECEIVED.

The following have sent us their price lists:

J. B. Batchelder, Keene, N. H., an advertising sheet of the Batchelder drone-trap.

J. J. Hulbert, Lyndon, Ill., a 14-page circular of bee-supplies in general.

Thos. L Thornton, Dividing Ridge, Ky., a 6-page price list of apiarian supplies.

J. R. Landes, Albion, Ohio, a 4-page circular—specialty, bees, queens, and poultry.

Will Ellis, St. Davids, Ont., Can., apiarian implements and a specialty of fine comb fdn. Will Ellis has obtained the first prize on foundation at the Lindon Western Fair, and first and second prize on foundation an the Toronto Industrial Exhibition. This fdn. was made from one of our make of mills, and the friends w.l. do well to bear this in mind when in need of a comb-mill.

I am being asked my opinion of the new circulars Mrs. Cotton is again sending out quite plentifully. The statements she makes, and the prices she charges for the goods she sends out, would, in my opinion, forbid her being classed with our regular supply-dealers, to say nothing of the strings of complaints against her that have filled our bee-journals for years past.

REDUCTION IN THE PRICE OF BEES AND QUEENS FOR THE MONTH OF JUNE.

Just before going to press.—The season is so extremely favorable for the production of bees and queens that we have decided, besides the offer mentioned on page 426, to make the prices of bees and queens, after the first of June, at July prices.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XIV. MAY 15, 1886. No. 10.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18c per year extra. To all countries NOT of the U. P. U., 42c per year extra.

JAMES HEDDON ON THAT WINTERING PROBLEM.

EXPERIMENTS IN FAVOR OF SUGAR STORES.

IT will be remembered that I have all along declared that the prime cause of our great winter enemy, bee-diarrhea, was concealed in their food. Well, through the persuasion of Mr. Barber and other successful bee-keepers I had almost made up my mind that possibly I was not altogether right about the matter, and that temperature was about all we need to look to; at least, I hoped that this easy solution of the difficulty might prove true. Last fall I prepared for extensive tests regarding the matter, and now I will state facts relative to my experiments during the past two winters, and let the reader draw his own conclusions to suit his reason and understanding.

Perhaps the reader will remember, that in the fall of 1884 I placed in a damp cellar 91 colonies, 73 of which had no natural stores of any sort (not a cell of bee-bread), they having clear sugar syrup fed into clean dry combs, while the other 18 had a part all natural stores, and a part a mixture of natural and artificial. The cellar was very damp—so much so that mold and pools of water could be seen about nearly every hive. About one-third of the colonies had upward ventilation; the others, only entrance ventilation. The cellar was allowed to become very cold. For weeks the temperature stood as low as 20°. Nearly every one of the 18 colonies on natural stores had bee-diarrhea, and the 73 on pure syrup came out, after a confinement of 151 days, without any fecal accumulations whatever. When they had their first flight, not a thing—not even water—could be seen coming from them—not a spot on any of the white hives. Here was cold and humidity, but no fecal accumulations. From one of the sick colonies (dead with bee-diarrhea) I took a sample of the excreta, and sent it to Prof. Cook for chemical analysis. I also inclosed some pollen from the comb contained in the frame from whose top bar I took the excreta. The professor answered as follows: "I have subjected the pollen to a very careful examination with a one-sixth objective. I find several kinds of pollen grains, two of which are by far the most common. One is oval, rather pointed at the ends, with a longitudinal slit and numerous projections; the other is globular, and thickly set with projections much like those in the other. I then studied the excreta; and had some one else made the change, I should have stoutly maintained that the objects were the same that I had just studied. The kinds of pollen were exactly the same in style and markings. The pollen you sent had been liberally appropriated by the bees whose excreta you sent."

Last fall I placed in a filled-wall, above-ground repository (room 11×7×18 feet) 150 colonies, with stores part natural, and part syrup. This house was kept at a temperature between 45 and 50°, and no signs of the disease appeared till late in winter, and, when taken out, no less than 25 to 30 colonies had diarrhea to a greater or lesser extent. For over three weeks, at one time, I maintained the temperature by closing the room as tightly as good carpenter-work and packing could make it; and during all this dearth of "fresh air," the bees remained quiet and in apparently perfect health. Here at home I placed 300 colonies in two cellars, one damp and the other very dry, the same as at Glenwood. We endeavored to keep up the temperture by tightly closing the rooms in the coldest weather, and we did so with the new cellar; but with the old one we failed, as at the back end there was a hole between the old boards that we overlooked, and never should have found, but that we caught it melting holes through the snow on the outside. Nevertheless, the temperature of both cellars never went below 45° nor above about 50°, and all was quiet, and no odor of diarrhea till near spring, and then the disease began to appear, and was rather worse in each cellar than at Glenwood, in the house.

Most of the colonies here were trusted to natural and part natural stores and high temperature; and none, except the few upon *all* artificial stores, came through without *any* fecal accumulations. It has well been said, that with honey at the present low price and slow sale, the purchase of 20 or 30 barrels of sugar, when 20,000 lbs. of the nicest honey is on hand, is almost impracticable, and this is the reason that I trusted most of my colonies to all or part natural stores. I must say that I am disappointed to find that, under no conditions, are we at all times sure of wintering one-half of our colonies with natural stores. It may be that in many localities this can always be done, but I can't do it here. This much is solved: I can winter any colony with certainty; but to do so I must not only keep up a 45 to 50° temperature, but see that their only food is pure cane-sugar syrup properly prepared and fed. My last winter's experiments fail to attach any importance to ventilation and humidity.

I had two colonies on natural stores, thoroughly packed, outdoors, and one of them died with the diarrhea. I did not expect this, but find the pollen theory too true in my locality. I did not hope to bring my bees through in *perfect* condition on natural stores, but I hoped to bring all through in condition to make good working colonies by the time clover bloomed; but I must own, that in this I was mistaken. Friend Barber's plan won't do here. I have just sent two specimens of the diarrhetic excreta to Professor Cook, and here is his report:

"The thick feces is loaded with pollen of various kinds, and largely insoluble in water. It has also many spherical fungi. The other, also, has much pollen, but less. It also has the spherical bacteria, or fungi, and, in addition, some forms which are chain-like. This is more soluble than the other; but after boiling for some time in water there is quite a residue that is insoluble."

The above are the facts, and all may draw their own conclusions. It seems to me they pretty well refute the opinions of Dr. Joslin and Father Quinby, as recorded by Mr. Hutchinson, on pages 249 and 250. JAMES HEDDON.

Dowagiac, Mich., May, 1886.

BEES CAPPING THEIR CELLS WITH COTTON BATTING.

DO BEES SEND OUT SCOUTS BEFORE SWARMING?

I HAVE some quilts made of sheeting and cotton batting. I noticed, a few days since, at the entrance of one hive some of the filling of one quilt, which had been carried out. I opened the hive, raised out the brood-combs, and found they had been using that cotton for capping some of their brood. Some of the young bees had nothing over their heads (and those that had no heads formed), but simply fine bits of cotton stretched across the cells in many ways, and I could look through the network covering and see the little fellows, like looking through a sieve. There was one patch about two inches square with no capping except cotton batting. You may say this was moth-webs; but I say no, not the work of any thing but the bees capping their brood.

Last summer I was doing some carpenter work for a man about a mile from where I live, about the last days of June. As I had lost most of my bees the winter before, I took what work I could get, as the 20 weak colonies I had left did not require much time. One day my wife came to where I was at work and said my bees had swarmed. "Well," said I, "where did they go?"

"Why, they went into a hive," she said.

I said, "Do you know which hive they went into?"

"Yes," she replied, "I marked the hive with a stone."

"Well, do you know which hive they came out of?"

"No," she said; "I did not see them until they were all flying."

When I went home in the evening I found they had entered a hive with combs in which the bees had died the previous winter; and when I examined I found them to be hybrid Italians, very cross, and I did not have a hybrid in the yard. There were also more bees in that swarm than I had in any two of my hives. The next week I noticed a great many black bees flying around my empty hives, and at five o'clock in the evening a large swarm of black bees came and went into another of my hives. I saw them come.

10—MONT. WYRICK, 20—46.

Cascade, Ia., Apr. 28, 1886.

Something of this kind, about bees capping cells with fibrous material, has been brought up before, and I presume there is no question but that the bees do, under some circumstances, use fibrous material. The cappings of the brood-cells are not wax, in any case. The fact you furnish about stray swarms of bees occupying your hives is also valuable; it seems to me as if it might pay to have hives fixed just right, ready for such truant swarms.

HEATING WATER AT DIFFERENT DEPTHS IN A CAN.

THE FEASIBILITY OF BOILING EGGS FROM THE SURFACE OF THE WATER.

I HAVE been a reader of your paper for the last year, and find it very interesting and instructive. I noticed a sketch in March 15th issue, over the signature of Ernest R. Root, "Experiments with Wax-extractor," in which the boiling-point, 212°, is reached. He thinks that eggs boiled by the sun are quite probable. I think he will have to boil them very near the top. I was attending a farmers' meeting in our town some years since. The question came up concerning cooling milk from the bottom. Some thought it could be cooled to the depth of a foot or more; when Dr. Marquis, one of our townsmen, who, by the way, had been experimenting with a pan he invented, asked the club over to his store to see what he could do. His pan was sixteen inches deep, with three faucets—the first, four inches from the bottom; second, four inches from the first; third, four inches from the second. He first asked one of the gentlemen to try the water in the pan. He found it alike in all the faucets—the same temperature as the air in the room. He then attached his cooling apparatus (which is a hollow tube) to a force-pump in the cistern, and lowered it to the bottom of the pan. His next move was to attach his heating apparatus to a steam-gauge, and lower it in the pan to the first faucet from the top, this likewise a hollow cylinder. He then stepped back in the store and got some eggs and laid a couple on the heating cylinder and dropped one to the bottom of the pan. He then told his servant to pump the water passing through the cylinder at the bottom, and back to the cistern. At the same time he turned on steam at the top, and in a very short time the water at the top was boiling rapidly. He kept both heat and cold going perhaps ten minutes, then he asked the gentleman to draw some water from the middle faucet and try it. It had not changed in temperature from where it was at on the start. He then raised his heating-cylinder and presented the ladies a couple of boiled eggs. He next tried to remove his cooler from the bottom, and found it frozen fast to the bottom of the pan. When he got it loose he brought up the egg, and at least one-half inch of blue ice. The egg was frozen open. He then reversed proceedings, putting the cooler at top, dropped some aniline on the cylinder, and commenced pumping; in a very short time the aniline was thoroughly mixed with the water. So I am afraid friend Root will find it up-hill business boiling eggs from the top.

NOYES B. PHETTEPLACE.

Norwich, N. Y., April 8, 1886.

Friend P., the matter you mention is a familiar one in chemistry, and one of the experiments often tried is to pour ether on the surface of water, and set fire to it. While the surface is more than boiling hot, a thermometer just beneath the surface shows no change of temperature, and ice may be in the bottom of the vessel without being melted at all. This very fact is made use of in hot-water arrangements for heating greenhouses. The only way to warm a body of water is to heat it at the bottom and allow the circulation caused by the heat to warm the whole body evenly. If the water containing the eggs to be boiled were placed in a black iron pan, I think the rays of the sun would go down and heat the bottom of the pan enough to warm up the water considerably, but perhaps not enough to make it boil.

ARTIFICIAL PASTURAGE.

DR. C. C. MILLER TALKS TO US ABOUT IT.

THE subject of artificial pasturage is one in which I have been much interested. I have spent upon it some thought and considerable money. Some may think it premature to talk of planting for bees, when millions of acres are yet unoccupied; but the day may come when these shall cease to be unoccupied, and it is well to be prepared in advance for the possible. There are a good many who have so many bees that out-apiaries are established; and for such it would be a great advantage if additional pasturage could be furnished near home at sufficiently low cost to maintain all in the home apiary. Besides, whether many or few bees are kept, there come gaps in the season when there is almost nothing for the bees to do, and it might pay to be at considerable expense to provide artificial pasturage to fill up these gaps. But it must be borne in mind that no one has yet demonstrated, by actual trial, that one or more acres of ground can be planted and occupied permanently by plants from which the honey alone shall pay a profit. Something may be done by scattering seeds on roadsides and waste places. I should like, however, to be able to plant a certain number of acres, and know with some degree of approximation how many colonies could be supported thereby, and know, also, that the honey obtained therefrom would more than pay all expenses. Although my attempts have been failures mostly, it may be of use to others to detail some of them that they may be avoided. One year I planted a quarter-acre of

SUNFLOWERS.

The ground was rich, they were well cultivated, and presented a fine sight when in full bloom; but I never saw any bees on them to amount to any thing. They were of the "Mammoth Russian" variety, and I think possibly the common kind might be better. The Russian produces a large quantity of seeds—perhaps, rather, a quantity of large seeds—but a bushel of common seeds, I should think, would contain about double the amount of meats that the Russian would, because the meat in the Russian seed bears no proportion to the size of the shell.

ALSIKE CLOVER,

Although a great success with some, has been otherwise with me. Sown on clay, several different years, it has generally failed to make a good catch, doing best, however, on low ground. Only one year did I have any success, and then I had an acre that was beautiful. Bees worked on it strong; but after one season of bloom it was gone, root and branch. Last summer there were some fine patches of alsike on ground that had never been sown. I can not think how it got there, unless from seed in manure put on two or three years previously. I have rather settled upon alsike as one of the things I can not succeed with, and yet it is quite possible that, in five years, I may have acres of it flourishing, by knowing just how to manage. I think enough has not been said about the beauty of the alsike blossom. I have never shown it to the lovers of flowers without calling forth warm admiration, and I think many would consider it worth cultivating for its beauty alone.

SPIDER PLANT,

From what little I have tried it, I consider worthless, although producing large quantities of honey, because I know of no way of raising it by the acre without heavy expense.

FLOWERING MAPLES,

Or abutilons, I have had for years. I have seen bees working on them, and have tasted from them the richest drops of nectar I ever tasted directly from any flower; the largest in quantity, also, before ever I saw any mention made of them as honey-plants; but I am rather surprised that time should be taken to talk of such plants as this, poinsettia, or other greenhouse plants. If the smallest slips of these plants were started, by the time they were rooted they could hardly be furnished for two cents each; but a plant just rooted, and planted out as early as our northern seasons will admit, would not be fairly in bloom before frost. Such plants as would be large enough to be of service would need to be much larger, and could hardly be afforded for less than ten cents each. But suppose they could be had for five cents each; and to keep down expense, let us plant them four feet apart each way;

that will require 2722 for an acre, or an outlay of $136 per acre, to be renewed annually at the same expense, as every plant will be killed with the first frost. Is it worth while to talk about setting out such plants in quantity?

FRUIT-BLOSSOMS.

If I were not in a region where fruit is quite plentiful, I think I should certainly try to find what kinds would succeed, and plant of them pretty largely. I have succeeded in having honey stored in sections during apple and cherry bloom but once, and then only by a single extra-strong colony in a few sections. But their influence in urging brood-rearing is so great that Quinby, if I mistake not, said the fruit-bloom decided the season. As to the character of the honey, I have never observed closely enough to make a positive statement, but will rather put it in the form of a question: Is not honey from cherry and plum rather disagreeable, and from apple of fine flavor, resembling the odor of crab apple blossoms? If bees work much on strawberries, I have never been able to observe it; but on raspberries I have seen them work very busily. The only objection is, that they come partly in the time of clover-bloom. C. C. MILLER.

Marengo, Ill., May, 1886.

Friend M., over and over again I recur to this subject, and I do think it is one of the greatest importance. You say no one has yet demonstrated by actual trial that one or more acres of ground can be planted, from which the honey alone will be a profit. This may be so; but even if it is, why not develop the plants where honey alone is not the only source of profit? Bee-keepers should raise buckwheat; or if they can not do that, induce others near them to raise buckwheat, on the plan suggested by G. O. Goodhue, on page 327. Buckwheat, alsike clover, rape, and possibly raspberries, can be worked on this plan; and who knows but that we may, in a few years, raise basswood for the timber and for the honey? My basswood-orchard is getting to be a valuable piece of property, and I should not be surprised if the time would come when the timber would be worth all it cost, to say nothing of the honey. Unless we discover some plant that yields honey in much larger quantities than any thing at present known, it certainly will not pay to raise plants to set them out, as we should have to do with the abutilons and spider plants. I presume you know there is a new plant now under test. See page 391.

LETTER FROM TOUNGOO, BURMAH.

FRIEND BUNKER TELLS US OF THE CONFLICTS AND TRIALS OF THE CHRISTIANS AMONG THE IDOLATERS.

THE goods reached us in good order, with the exception of a few glass pails and tumblers broken. Taking into account that the goods traveled over 12,000 miles, and were shipped and re-shipped several times, this was not bad. The iron-jacket cans, a few of them, got a dash of salt water, and were marred by rust; but this was soon remedied by a dash of japan varnish. We were all very much pleased with the goods, especially Nellie and Ruthie, who soon found clover-heads and other treasures in the grass and straw. These have all been carefully collected for sowing, in the hopes of raising some old home flowers. I had expected to have two Italian swarms of bees to begin with, when the hives ordered of you should arrive; but owing to bad packing, when they reached me both swarms were suffocated. The first swarms to reach Burmah, and suffocated at that! I am much disappointed, but hope for better success next time. I have applied to the government (agricultural office) here for aid to make further experiments in this direction as soon as this war is over.

You have heard through the papers of the annexation of Upper Burmah, and the deposition of King Theebaw, and perhaps you have thought, with many others, if you have thought of the matter at all, "How quickly this Burman Empire has been overthrown, and incorporated with Her Majesty's dominions!" But in fact, the work is far from being completed. We have about 25,000 Christians in Burmah; all the rest are gross idolaters, except, of course, Europeans. Now, the priests of these idolaters, "priests of Baal," have been preaching to their people that King Theebaw, being the head and protector of their religion, has been overcome by the English because of the *prayers* of the native Christians! What a grand admission of the majesty and power of the Christian's God! So these priests say, "Let us kill off all these Christians, and we shall win back our kingdom." As a consequence, these priests have become leaders of war parties, and are scattered all over Upper and Lower Burmah, burning, sacking, and killing all who will not join them. The government police are idolaters, and have joined the insurgents with their arms in many cases.

The Toungoo Mountains run north and south through Shwaygheen and Tavoy Districts, and have a large population of Christian Karens. Of these, 81 churches, or villages, or about 2500 baptized adults, with a large nominal Christian population, are under my care. A band of two thousand or more gathered in the Shwaygheen hills, and attacked the Karen Christian village, killing and burning, especially burning, chapels, and cutting up Bibles and other books. The government could not meet the case, and could supply only a limited number of arms. The people had no leaders but ourselves, their missionaries, so we have been obliged to lead our Christians to war as in the days of the Israelites of old. The Karens, though poorly armed, have met these idolaters, and have fought them, and the slaughter has been great. The native pastors continually quote the wars of the children of Israel as their guide, and woe to the man who seeks plunder. They bring all plunder to the government officers for disposal. Hundreds of these idolaters have been killed, and scores taken prisoners. The leader, a priest of great note, for whose capture the English officers had offered 5000 rupees as a reward, was caught by my Karens a few days ago, under my leading, and is now safely shut up in jail awaiting his trial. His capture reminds me of Sisera of old, for he was captured largely by women, though thought by his followers to be able to appear or disappear, jump a mile, or take upon himself any form he liked, at pleasure. The superstition of these idolaters is marvelous in the extreme. Our troubles are not at an end. The people are in a state of great excitement. We are in the midst of idolaters; we know not what each day has for us, nor when the people will rise. I leave to-morrow to try to raise arms for my people in Rangoon. But few of our Christian Karens have been killed, though many have been wounded. Their escapes have been wonderful, and they say, "Surely God is with us, or we could not escape as we have."

I have spoken of our mission in Toungoo, but these risings are taking place all over the land, and the English are put to the exhibition of their best efforts to overthrow these insurgents. God, however, will smite these idolaters as he did in ancient days. A. BUNKER.

Toungoo, Burmah, Mar. 9, 1886.

Why, friend B., we didn't know before that missionaries had to pass through such ordeals as you mention. It is a terrible thing for a Christian to be obliged to take up firearms, to be used against his fellow-men; but I presume there are circumstances where it can not be avoided, much as we should like to live at peace with all men. We presume you know of the troubles here at home in regard to the strikes, and of the conflicts between labor and capital. May God grant that a Christian spirit may soon prevail, both here at home and in far-away Burmah.

WOMEN AS BEE-KEEPERS.

MRS. AXTELL GIVES US A LITTLE TALK ON THE MATTER.

DEAR MR. EDITOR:—Permit me, through your pages, to give my views as to whether or not women should be deprived of that healthful, ennobling, and remunerative occupation, bee culture. Mr. Heddon has a right to his opinion as to whether it is degrading or not. There are some Christians who think it wrong for women to speak in church; but does it prevent her doing so? To the pure, all things are pure. In this nineteenth century, God is opening doors to us that no man can shut. "Go ye into all the world, and preach the gospel to every creature" might greatly be obeyed if longing, loving hearts knew of the golden mine of the bee-hive. For my part, I wish many more women could be induced to learn the business, especially those daughters who are allowed to sit in the parlor and let mother do the work, or fix up and go down town every afternoon, especially about train time. I am sure, that, were our girls encouraged to spend more of their time at home in such healthful, ennobling, and lucrative employment as caring for bees, there would be many more happy homes, both in the country and in town.

Many an overburdened mother would find it a *real* rest to leave her hot kitchen and don her bee hat, and, slipping on her loose sack sleeves that cover hands securely, and with smoker in hand spend an hour or so with her bees. Who ever nursed trouble over a bee-hive? 'Tis all forgotten; and with glad eyes and delighted heart she delves into its treasures as she gathers up the golden nectar and stores it away for her husband's tea-table.

I say, let woman keep bees all she has a mind to; encourage her in every way possible, and then there will be room enough left for the sterner sex. Why, it almost makes me indignant to think that any one should dare to try to discourage us in so delightful an employment. SARAH J. W. AXTELL.

Roseville, Ill., May, 1886.

The above is about what I should expect of you, my good friend Mrs. A. There is another thing. They can not say that bee culture is all very well for women who are stout and strong, for we all know of your feeble health for so many years. If women feel as I do about getting out into the open air, you surely are right about it; for oftentimes when I go to bed tired at night I feel as if the greatest blessing that I have to thank God for is the fact that I am privileged to get out so much every day under the broad blue sky. By all means, let the women enjoy this blessing too, where they feel inclined to.

THE CHAPMAN HONEY-PLANT.

SOMETHING THAT IS SAID TO BE OF GREAT PROMISE.

AT the convention in Detroit, Mr. Hiram Chapman, of Versailles, N. Y., brought specimens of a plant which he claimed furnished honey in larger quantities than any other known species of the vegetable kingdom. He has grown the plant for several years, and on a sufficiently large scale, so that he was enabled to pass around specimens of comb honey said to have been produced by this plant. He sends us some plants with the following letter:

I ship you to-day fifty Chapman honey-plants which, if properly cultivated, will produce this season seed enough to sow half an acre of ground. It is my custom to transplant before it is so old, and I place it in rows two feet apart. I find, also, that a larger flow of honey is obtained in dry localities. To test the length of the blossoming season, cut back some of the plants as soon as the first balls appear, thus the vitality of the plant will be devoted to the production of other blossoms; the root will throw up strong healthy plants three or four seasons.

I do not intend these as directions, but only as hints to you in your experiments with these plants. I have no hesitation in sending you the plants, for my confidence in you is such that I know you will not take advantage of the situation and use it adversely to my interests; but to relieve yourself from any embarrassment or annoyance which may arise, please acknowledge through some bee-journal the receipt of the Chapman honey-plant for your *individual* use and experiments, and that it is being tested by you; also report in some journal, and to me, the result of your experiments.

One thing I ask as a favor to myself, and to all bee-keepers everywhere—Should you find that it does not thrive well, or prove successful in your particular locality, do not be hasty in condemning the plant as a failure, for not you alone are testing it; it is being experimented with, through a vast extent of territory, from Massachusetts to Nebraska, and the variation in soil and climate will probably exert a marked influence on its growth.

You can set the plants nearer if you wish, but you must consider that if your plants do well they will bloom three years or more. Set the plants in good soil, for the roots are old and they will develop. They will not bloom as early as mine will at home.

The Chapman honey-plant is a member of the great family to which the thistle belongs, and in some respects resembles the thistle. It has not, however, the features which make the thistle so obnoxious, for it does not send its seed broadcast on the wind, nor spread from the root, and is easily eradicated from the soil; but to save the necesity of overcoming the popular prejudice against any thing called "thistle," I think it expedient to avoid giving it that name, and therefore request you to refrain from referring to it as "thistle" in any report you make, or article you write concerning the plant. HIRAM CHAPMAN.

Versailles, N. Y.

BOOK-REVIEW DEPARTMENT.

EXPERIMENTS IN APICULTURE, BY NELSON W. MC LAIN.

A COPY of the above report has been sent us, and, as was to be expected, we are not disappointed as regards its contents. In it the student interested in the science of apiculture will find a field opened for investigation. The experiments therein contained are interesting, and some are quite conclusive on some of our old disputed questions. The whole is worthy of a reprint in GLEANINGS; but as our space is crowded I will try to give a birdseye view of it, accompanied with several extracts. First we will consider

ECONOMY IN THE PRODUCTION OF WAX.

At the National Convention at New Orleans, Mr. Paul L. Viallon, in a paper which he read, stated that, in his opinion, the bees did not consume 20 lbs. of honey to make 1 lb. of wax; that this estimate was too high. According to his experiments, the consumption of only 7 lbs. of honey was required to make 1 lb. of wax. Prof. McLain, however, verifies the old estimate. He says:

> If account be taken of the loss resulting from having the time and energies of the bees expended in wax-production instead of honey-production at a season of the year when there is most imperative need for uninterrupted and diligent activity in honey-gathering, and of the value of the honey consumed in producing wax, and of the labor required in preserving and preparing the wax for market, it will readily be seen that the production of a pound of wax costs the producer many times the current prices realized. About 20 pounds of honey are consumed in producing 1 pound of wax.

From the fact that McLain's estimate of the cost of wax is backed by former experimenters some years ago, it would seem that 20 lbs. of honey to 1 lb. of wax is very nearly correct.

WINTERING BEES.

After speaking of the different methods of wintering, and the conditions of success, the author believes that the lack of water to colonies in winter quarters is one very potent cause of dysentery. Here is what he says:

> Excessive thirst, and prolonged low temperature, cause what is called "roaring in the hive." Disquietude from any cause induces excessive consumption; dysentery follows; death usually results. I have frequently quieted roaring in the hive, and restored the bees to their normal condition of quietude, by supplying water.

To supply the bees with water, a moderately wet sponge is placed in a hole bored in a suitable block. The whole is placed over the cluster, under the blanket or cushion. The addition of a little salt is recommended as being a preventive to dysentery. The water, he says, should be given when the weather is suitable, and he thinks it will largely prevent the loss of valuable colonies which might otherwise be lost.

BEES VERSUS FRUIT.

For thoroughly testing whether bees could injure fruit, a bee-proof building was constructed expressly for the purpose. The sides of the building were so made that they could be opened, and wire screens complete the inclosure. A stove was placed inside, so as to maintain a high temperature, and also to bring about as nearly as possible an artificial drought. Fruit of various kinds, especially grapes of the different varieties, was obtained from numerous sources, and placed inside. Three hives of bees on empty combs were also placed inside—two of the swarms being hybrids and the other Italians. As to how the bees regarded the fruit, the author says:

> The bees were brought to the stages of hunger, thirst, and starvation. The house was kept locked, and we carried the key. Every inducement and opportunity was afforded the bees to satisfy their hunger and thirst by attacking the fruit exposed. They daily visited the fruit in great numbers, and labored diligently to improve the only remaining source of subsistence. They inspected and took what advantage they could of every opening at the stem or crack in the epidermis, or puncture made by insects which deposit their eggs in the skin of grapes. They regarded the epidermis of the peaches, pears, plums, and other fruits having thick covering, simply as subjects for inquiry and investigation, and not objects of attack. If the skin be broken or removed they will, in case of need, lap and suck the juices exposed. The same was also true of the grapes if the skin was broken by violence, or burst on account of the fruit becoming overripe; the bees lapped and sucked the juices from the exposed parts of grapes and stored it in the cells for food. They made no attempt to grasp the cuticle of grapes with their mandibles or with their claws. If the grapes were cut open or burst from overripeness, the bees would lap and suck the juice from the exposed segments of the grape until they came to the film separating the exposed and broken segments from the unbroken segments. Through and beyond the film separating the segments they appear to be unable to penetrate.

A test of this kind for 30 days, during which grapes of a thinner skin were tried, showed that the bees had no disposition to injure any of the varieties of fruit; and only when the grapes were rotten or broken open did they attempt to appropriate the juices. In one outdoor test, the grapes were dipped in honey, and the bees were allowed to get well started to robbing on them. The honey having all been licked off, the grapes were all left unharmed.

It is very gratifying indeed for us to know that these experiments have been made under the auspices of the United States, and that the results show that bees *do not injure fruit.* Whenever a controversy again comes up, we can with pleasure refer back to this report.

ARTIFICIAL FERTILIZATION OF QUEENS.

This has always seemed quite impracticable as well as impossible, and it is yet possible that the thing is not yet solved. Prof. McLain has struck upon a plan, however, which, to me at least, seems possible. In brief it is as follows:

After trying artificial fertilization in the cell upon imago queens without success, or, at any rate, with only partial success, he finally made experiments upon queens which had reached the age when they take their wedding-flight, or at the time when orgasm occurs. This, in most queens, is from 5 to 7 days from the time of hatching. His manner of accomplishing this result, we give in his own words:

> When orgasm takes place, the generative organs of the queen are highly excited and much distended. We confined a queenless colony in their hive, and gave them a queen-cell which had not been disturb-

ed while maturing, and allowed the queen to hatch. When the virgin queen was six days old, orgasm occurred; and on the evening of the seventh day we removed her from the hive and placed drops of the male sperm upon the open vulva as she was held back downward, by gently grasping the thorax between the thumb and forefinger. The instant the male sperm was pressed from the testes and seminal sack of the mature drone upon the excited and distended vulva, it was curious to observe the effect. The action of the abdomen and vulva resembled that of young birds while being fed. There was the reaching up after the seminal fluid, and an action of the parts resembling the opening of the mouth and swallowing food. As much seminal fluid as could be obtained, by the imperfect method employed, from three or four drones, was utilized and readily absorbed by the queen, after which her wing was clipped, and she was dropped on a frame covered with bees and returned to the hive, and the bees were liberated.

This queen, he states, after assuming the appearance of a fertilized queen, soon began to lay, and her eggs in due time produced well-developed workers. Observe, that the bees were confined prior to the queen's fertilization, and after which her wings were clipped. Of course, it does not seem possible that the queen could have been fertilized by natural means, and yet she *might* have been. The field is now opened; and if Prof. McLain shall again meet with the same results in future experiments, and his work be verified by others, we shall then conclude that *artificial fertilization is possible.* We await the results.

IMPORTANCE OF APICULTURE.

Under this head I clip the following:

> The estimated annual product ranges from $15,000,000 to $20,000,000, and the annual product of wax is about $1,000,000 in value. Not more than 8 or 10 per cent of those favorably situated for the cultivation of bees are engaged in the pursuit. If even one-half of those favorably situated were so engaged, the annual product would not fall below $75,000,000 or $80,000,000 in value.
>
> The United States imported 2,400,000,000 pounds of sugar, at a cost of $94,923,500 in the year 1884.

In conclusion, for fuller details than I have been able to give, I would refer you to the report of "The Experiments in Apiculture," as issued by the author, Nelson W. McLain, Aurora, Ill. After you have read carefully the report, I think you will agree with me that Prof. McLain deserves a vote of thanks from the bee keepers for the work he has done. E. R. ROOT.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

I READ your article concerning D. Staples sending out dead blueberry-plants. I sent one dollar to him March 15 for two dozen plants; and as they did not arrive by April 26, I sent a card to him to send them on. May 1st, a small package of dead sprouts, no roots at all, and as dead as a door nail, came. He should be advertised far and near. It is worse than stealing, to my notion. FRED WIRT.

Keithsburg, Mercer Co., Illinois.

Friend W., we have placed to your credit the one dollar you have lost in this matter; and we will do the same with all the rest of our friends who have sent money to Delos Staples, and received nothing of any value in return. We hope other papers will take up this matter, and expose his business, before he can swindle many more through his advertisements.

HOW SHALL WE GET BEES OUT OF THE SECTIONS?

HOW ONE OF OUR FOLDING TENTS MAY BE UTILIZED FOR THE PURPOSE.

YOU ask me, in your foot-notes to my article, Apr. 15, page 298, "How does friend Vandervort get the bees out of the cases?" I frankly confess I don't know, and this has been a vexed question with me ever since I have kept bees. For the last two years I have smoked and shaken out all the bees that I could, and then piled the cases up across each other, and set the folding tent over them with a small hole cut in each end at the top, and the most of the bees will usually leave in a few hours. I wish that C. C. Miller, James Heddon, or some others of the leading bee-keepers, would tell us how they get the bees out of the boxes. Some colonies have the habit of uncapping the honey as soon as the hive is opened. How are we going to manage these, for such honey is unsalable at the best prices?

This has been a cold snug winter here, and bees have dwindled some this spring; but we are having fine weather now, and the bees are building up very fast. 10—GEO. A. WRIGHT, 95—80.

Glenwood, Susq. Co., Pa., Apr. 21, 1886.

ARTIFICIAL PASTURAGE.

THE GOODHUE PLAN (SEE PAGE 327).

I AM satisfied, after a six years' experience of the method of artificial pasturage which I spoke of on page 327, it will produce surer, greater, and more satisfactory results every way than all other methods of artificial pasturage combined; while for cheapness, simplicity, and ease of working, I do not see how any other method can compare with it. I do not mean, however, that it should supersede all other plans entirely, but I think it should be given far the foremost place. I bought 500 lbs. of alsike last week, and expect to get most of it sown within two miles of my apiary. The total expense of getting it sown will not exceed $10.00, and less than one day's time. Without my exertions, one-fourth of the above amount might perhaps be sown near me; and with very little care and trouble I expect to *quadruple* the quantity. Perhaps some of our experienced bee-keepers might like to make an estimate of the quantity of honey this extra 375 lbs. of alsike is likely to produce during the coming three years; thus they might make a calculation to try to find out how much it would cost to produce an equal quantity of the same quality of honey by any one or all of the other methods of artificial pasturage now known. I should like to see how such a balance-sheet would look.

I think if this plan were faithfully tried for a few years we should hear far less complaint about overstocking. GEO. O. GOODHUE.

Danville, Que., Canada, April 29, 1886.

I think you are on the right track, friend G.; and from reports we have had, and also from personal experience in our vicinity, I am inclined to think that the cultivation of alsike is the most practical undertaking that has opened to us, to improve our honey-flow. Neighbor H. has repeatedly had good yields of honey in his apiary where he had fields of alsike near, while the other apiary, five or six miles away, where no alsike was near, gave hardly any honey.

LETTER FROM SOUTH AMERICA.

CAN THE BEE-BUSINESS BE PURSUED PROFITABLY FROM THE SALE OF WAX ONLY?

THE honey-business is worth nothing here. You couldn't sell large quantities at 2 cts. per pound. My sole hope is the vinegar and the wax. Can modern bee culture be pursued to advantage by raising wax only? Beeswax is worth here 30 cts. per pound, and still more in candles. If an apiary can be maintained with profit for the wax principally, please give me, in your next issue, full particulars of the method best suited for this design. Do you think some honey mixed with the cow's beverage would improve milk or butter? Is there any book about the uses of honey? Can candy be obtained from honey in hot weather, by artificial process?

MIGUEL RIBEIRO LISBOA.

Barbacena, Brazil, April 8, 1886.

Here is something else in the same line, from one of our friends in Mexico:

As bee-keeping in Mexico is an affair conducted in a manner entirely without skill, *El Industrial Mexicana*, a monthly cyclopedia of which I am the editor, is now giving the first information on this subject. As we have neither use nor demand for honey, we are compelled to get all the profit on bee-keeping from the sale of wax, which ranges in price from 16 to 17 and 19 cts. per arroba (25 pounds). Wax has a very large demand in this country, and one could sell as much as he could get. Now, Mr. Root, does your A B C book give especial information for stimulating bees to build comb instead of gathering so much honey? You know folks don't eat honey in this country.

J. GARDIDA.

City of Mexico, April 15, 1886.

Dear friends, we are very glad indeed to get letters from so remote points, and we shall be very glad indeed to make GLEANINGS a medium for helping in the production of wax instead of honey, as far as it may be possible to do so. This matter has been discussed in our back volumes. The principal experiment we now think of is the one by friend Hasty, somewhere in our back numbers; also see A B C book, p. 288. Also see GLEANINGS for 1883, page 67.

While wax was worth from 35 to 40 c., and we we were obliged to import it from Europe in order to get enough to supply the demand for comb foundation, it was considerably talked of. The market price now, however, is only from 20 to 25 cts. Still, as the price of honey has declined in about the same ratio, it may be well to consider the production of wax in our apiaries, as well as the production of honey. One thing we may do with safety, in any event, and that is, take pains to save every particle of wax the bees produce, allowing not an ounce to go to waste.

We shall be very glad to get reports in the matter from any of our readers; but so far I believe experiments have not resulted very encouragingly. With a mild climate, however, and an uninterrupted flow of honey, no doubt the chance might be much greater for success. I have never heard the question discussed as to making cows eat honey. I suppose it is because it costs too much here. Cows are very fond of maple syrup, or sap, however, and no doubt it might augment the quantity and quality of milk and butter. Friend Newman of Chicago, Ill., has a little book called "Honey as Food and Medicine." We mail you a copy. The A B C book tells something about bees building comb. We have sent you a copy, and hope you will find it helpful.

CLOSING THE ENTRANCE OF HIVES DURING WINTER.

HOW TO KEEP A CELLAR COOL.

ALTHOUGH but a novice in bee culture, yet I have often wondered why apiarists did not recommend the closing of the entrances to the hives when putting them into winter quarters, so as to prevent their flying out. Last fall I put 11 colonies, carefully prepared, into my cellar, with the entrances open as directed. The cellar was well ventilated, and quite dark; yet the bees would come out by the hundreds, and, of course, perished. Now, I should like to know what evidence there is to show that a large proportion of those lost would not have lived to protect the young brood in the spring if they had been prevented from flying out. Two of the colonies died before March, and I fear that several of the others are quite weak, and that spring dwindling will follow.

Now, Bro. Root, I should like to ask what evil could result by keeping the entrances closed with wire screen, or something of that kind, at the same time being careful to keep the openings clear of dead bees, and giving them a good fly once in a while on fine days. The weather becoming very warm for several days, after the middle of April, the bees became uneasy; but having obtained some snow and ice during the winter I placed a pailful once, each warm day, in a tub on top a barrel in the cellar (17×30), and made the place totally dark, and the bees became as still as mice.

Last fall a neighbor of mine put 13 strong colonies, with lots of honey, into a warm cellar; but they were exposed at times to the light of the sun; and the result was, the bees came out by the thousands, and were chilled to death; and before the first of March, 9 out of the 13 were dead, leaving from 12 to 30 lbs. of honey per colony behind. Now, who will venture to say that, if the entrances had been closed, as suggested above, the bees would still have perished. I for one must acknowledge being very skeptical in the matter.

W. C. WHITE.

Hamilton, Ont., Can., April 26, 1886.

Friend W., the matter of closing the entrances in winter has been very fully discussed in our back volumes. Sometimes it succeeds very well, and at other times the bees crowd about the entrance, become excited, and may be smother the whole hive in their frantic efforts to get out. I believe it has generally been abandoned. We practiced it several winters; but instead of trying to confine the bees by fastening wire cloth over the entrance, we put wire cloth over the whole top of the hive. Those fastened in their hives wintered about as well as the others. We noticed very little difference.

WHAT KILLED THE BEES, ETC.?

LAWYERS FOR BEE-KEEPERS.

I WENT into winter quarters with three colonies, as I thought good and strong. One died, and, strange to say, it died with plenty of natural stores. I could not account for it. When I examined them in January there was but about a single handful of bees. These were on a center comb, in the middle of which was a small patch of brood about as large as the palm of my hand. They had plenty of pollen, as well as honey. We could not find any queen. What do you suppose caused them to "play out" in that style?

I started in the spring with two colonies. I did not let them swarm. We had a poor honey season in our neighborhood, but I sold about $9.00 worth of honey and wax, and ate about $1.00 worth. It was all comb honey. I was not at home, except at night, and consequently had to keep the bees in the house where I slept. We got along finely together.

A DOG EATING BROOD.

In GLEANINGS for Nov. 15, I. R. Good speaks of "eating queen-cells." This reminds me, that, summer before last, while I was transferring some bees for my aunt I laid a piece of brood out to one side, and when we went to look for it the dog had eaten it up. It was a good large piece of brood too, quite as large as my hand.

SWARMING BEES.

In the latter part of 1883, a lawyer of Burnet, through my influence, bought a swarm of bees; last summer his bees swarmed, while court was in session here. As he was expecting it he asked a gentleman in the court-room one day if he knew any thing about swarming bees. His friend said he did.

"Come," said the lawyer, "and go with me to dinner."

He went. The bees had settled in the top of a sapling.

"Now," said the guest, "you take an empty box and hold the open end up to receive the bees, while I shake them off."

My legal friend obeyed, while his guest procured a large stone, quite as much as he could handle well. He struck the sapling a tremendous blow.

The bees covered the lawyer, who dropped the hive and pursued his friend, whom, I need hardly say, had taken to his heels. Round and round they chased each other, through the orchard and over the garden. Of course, a string of bees followed as they went.

"I thought you told me you knew how to swarm bees," was the first question asked.

"I do; but I don't know much about hiving them," was the answer.

FIGURES AFTER THE NAMES.

Please tell me what those figures before and after the bee-keepers' names indicate. I thought at first it was to show how many colonies one had; but how can one determine, when figures are used both before and after names? C. W. HARDY.

Burnet, Texas.

Friend H., I do not see any thing strange about the way your bees died. The colony was so weak that their queen died, and then the rest, as a natural consequence, followed. The queen laid the eggs that produced the brood, before she stepped out. We generally suppose that a lawyer can do almost any thing if he sets about it; but it seems in the above case that the combined talent of *two* lawyers didn't manage that swarm of bees successfully.—Figures before a name mean so many years in the business; after the name, the first number means fall count, and the other spring count.

* * *

POLLEN FROM THE CACTUS.

WHAT IS THE DIFFERENCE BETWEEN A WASP AND A HORNET?

AFTER reading what Ernest said about bees working in rye meal, I went out into a pasture opposite our house where I saw them gathering pollen from the cactus flowers. I noticed one of them alight in a flower three inches across, containing enough pollen, I think, for half a dozen loads. When he came out of his bath he was yellow with pollen; and hanging to the edge of the flower, sometimes by one foot, with a quick motion of his other legs the pollen was scraped into the baskets, and with the middle legs neatly packed down, after which he flew away. On returning to the house I secured some pollen from an incoming bee, and found that it was quite sweet, while that in the cactus flower was tasteless. This confirmed the opinion which I have entertained for a long time, that, in packing the pollen in their baskets, they used honey to stick it together, and the honey is supplied from some secretive glands. While the pollen adheres readily to the bee, it did not adhere to my finger, which was even moist with perspiration. The cactus is rich in honey as well as pollen, but it can not be reached by bees. If honey were as plentiful in proportion, in this locality, as pollen, the yield would be immense. My bees brought in pollen last winter as late as December 15th, and commenced again on the 14th of February. There are but few periods when pollen is not abundant. In a week or two, cactus will be in full bloom.

About two weeks ago drones made their appearance in one colony, but were soon dispatched. The young drones were even torn from the cells and carried out.

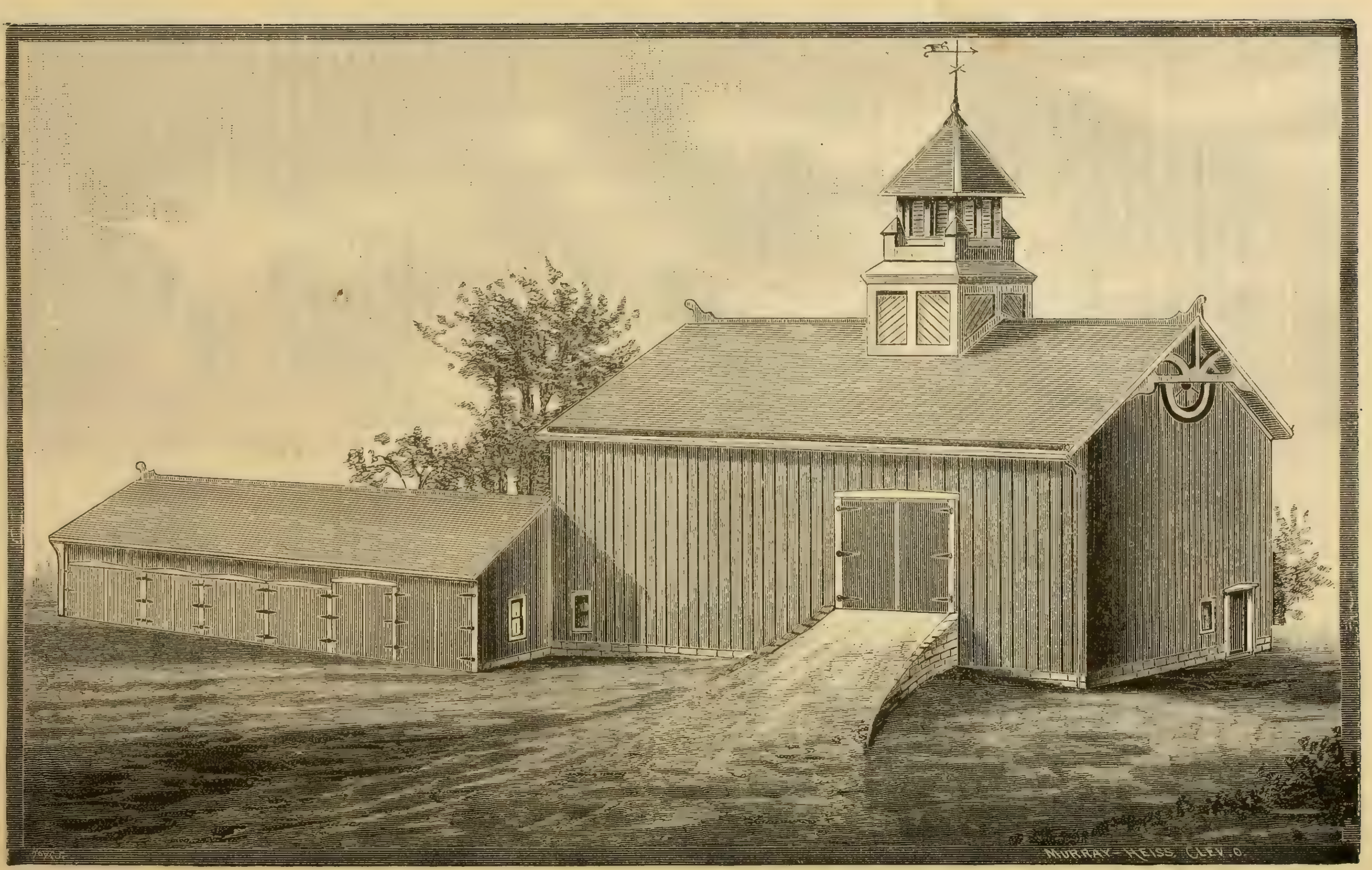
Why are robber bees nearly always black and slick? I mean those professional robbers.

What is the difference between a wasp and a hornet? Please describe the kind of nest that each of them builds. Can a wasp or hornet prolong the development of its young by withholding food?

I often see my bees come in so heavily laden that they have to stop on the alighting-board half a minute, and fan themselves, before they can enter the hive. T. F. MCCAMANT.

San Antonio, Texas, April 22, 1886.

Friend M., I guess you have hit the motions, in regard to handling the pollen, about right. I supposed the drones were turned out because of a dearth of honey. The professional robbers become black and slick by squeezing out and in small holes. Sometimes they get their fur pulled off by the sentinels of the hive grabbing them. — Your questions in regard to wasps and hornets come rather under the head of entomology, and I feel sure that Prof. Cook will tell us about them, especially the matter of prolonging the development of the young.


MURRAY-HEISS CLEV. O.

T. B. TERRY'S MODEL BARN AND TOOL-HOUSE, HUDSON, OHIO.

EXTRACT FROM TERRY'S NEW BOOK.

SOMETHING ABOUT HAY; THE DIFFERENCE BETWEEN HAY MADE ON DRAINED AND UNDRAINED LAND, AND SOME KINDRED MATTERS.

WE are so much pleased with the new book mentioned above, that we have decided to give our readers a single chapter as a sample, and in connection with it we submit a picture of Terry's barn and tool-house, shown on the opposite page. The tool-house was illustrated and described last fall, on page 720, GLEANINGS for Oct. 15. The description of the barn is almost too lengthy for our columns; but it is so intimately connected with the subject-matter of the book that the book is built up in and around the barn, as it were. The following chapter, you will notice, comes in just abreast of the haying season:

WHAT KIND OF HAY?—DRIED GRASS, RAISED ON FERTILE DRAINED LAND.

If the reader has decided to keep his stock in a warm comfortable stable, and to feed and water them properly, the next question which naturally arises is, What shall I feed them? We will discuss this question rather fully in this and following chapters, and perhaps get a little off from our text now and then, as it is a very important subject.

On many farms the answer to this question may be such as to give the owner an opportunity for a grand success or a bare living. These are pretty strong words, but they shall be made good before these chapters are finished, by facts that no one can gainsay.

First, in regard to the hay fed, let it be early-cut or dried grass, and a good share of it clover, if clover can be made to grow on your soil. To this, my friend Mr. D. E. Fenn, of Tallmadge, at our farmers' institute, held in Cuyahoga Falls, added, "Let the grass be raised on well-drained land." He thought that tile-draining would pay for grass and clover, as the hay is of better quality. There is no doubt but that he is right. The hay should be raised on fertile, well-drained land. Hay isn't hay, any more than butter is butter. I saw a merchant buying butter of a farmer for 12 cts. per lb., the other day; and if any one, I think the merchant got cheated. I bought a crock of my neighbor, and paid 28 cts. per lb., and it was worth it. Now, I have seen hay grown on rich drained land that would yield four tons or more, in two or three cuttings, during the season, and hay grown on land so poor, and filled with stagnant water, that it would not think of making more than one crop in a season, and that, perhaps, half a ton to the acre, or three-fourths; and there was as much difference in the feeding value of those two lots of hay as in the value of the two lots of butter spoken of. In the case of the butter, possibly analysis would not show much difference in the component parts of the two sorts; but our senses of taste and smell are not governed by analysis. We like a fine flavor and aroma; so do our animals. I have never known of any analysis of the two kinds of hay mentioned above; but from experience in feeding I should think there must be a decided difference in their component parts; at any rate, the cattle know which is most to their liking.

A friend was once rather making fun of my rank, coarse hay, grown on rich drained land. He said the cattle would take his finer hay, grown on land that produced only about a third as much per acre, first, every time; that all stock liked such hay better; that mine was too coarse and woody. After some dispute we agreed to leave the matter to be decided by a lot of cattle I was feeding in the stable. We put samples of his hay and mine along in the manger, so the animals could take their choice, and, much to my friend's disgust, they took my "woody, coarse" hay every time. No need of analysis to tell them which was the better. It doesn't follow, of course, necessarily, that they would not gain as much flesh on a ton of my friend's hay as on a ton of mine, although it was not as well relished; but from other experiences I feel sure they would not. The matter of relish alone goes a good way. When hay is, as one farmer expressed it to me, "medicine" to one's cows, the best results can not be obtained.

When I first bought my farm, which had been rented and abused till no one wanted to rent it at any price, we mowed over a good many acres to get a few tons of hay; and although it was cut reasonably early, the quality was so poor it would hardly keep the breath of life in the stock during the winter. Grain was bought and fed with it, and thus we managed to get along. Since that time, cattle have been sold for beef in the spring—not very fat, of course, but good fair beef, that had not had a pound of grain during the winter. This has been done as an experiment, to see what could be done with choice hay alone; but it is not, of course, the wisest way. Cows have been milked twice a day all winter, giving a good mess of milk, on dried grass alone. Horses have drawn heavy loads of potatoes and wheat to Akron to market, some twelve miles, fed on hay alone, week after week and month after month, some years, and kept in fair order. These horses would have given out in one week, if fed on the hay we first raised, before the wet land was tile-drained, and tillage with a little manure and clover had made our land fertile. So they would have given out in a short time if the hay had not been cut early, when at its best, and if a part of it had not been clover. I am not advising any one to keep his horses on hay alone, but am merely using my success in this line to illustrate what can be done with prime hay. My work-horses are kept this way because I can keep them healthy, and ready for business, on such feed, cheaper than on any other. One needs, however, the right kind of horses — not of the slim race-horse breeds — and they need the right kind of driving.

When I began farming, hardly any one in this vicinity thought of cutting any hay until along about the last of July, and many were still later. I was new at the business, but common sense told me to cut the grass when it was green, and relished by stock, and not let it stand until it was so ripe as to be no better than straw. Farmers used to say to me, "Why, your hay will all dry away cutting it so green, and then you lose a good deal of weight by its not being more than two-thirds grown." They forgot that the second crop came right on as soon as I cut the first off, and made as much growth in the same time, perhaps, as the first would if I had left it standing. If it did dry away a little more, what was left was extra choice, and more than made up in quality what it lacked in quantity. About the first of August the second crop was cut — about the time others were securing their first one; and some years three crops were cut, the last one about the first of October. Some laughing was doubtless done at the town-bred book-farmer; but when he began to increase his stock until, instead of nine cows, forty to sixty were in the barn in winter, it was evident that something was the matter. We do not claim any credit; but numerous mowing-machines are now running as soon, or sooner, than ours. Our best farmers who raise wheat strive to get their haying all done before the time of wheat-harvest. But in traveling over the country, one sees large quantities of grass standing for weeks after it ought to have been cut. Then the farmer feeds grain—bought, or of his own raising—with it, to make it young again, or to make it as good as it might have been alone without grain, if it had been cut at the right time, and properly cured. Probably its being more difficult to cure is one reason why all do not cut their grass earlier. It is some more trouble to cure early-cut hay. Usually, the better a thing is, the more it costs. The easiest way is rarely the best way. It is easier to shake apples from the tree than to pick them; but it is hardly the best way. It is easier—takes less labor—to stack our hay, and feed the stock around the stack; but few farmers, however, can now be found in this part of the country who will advocate the plan. It is easier to let the grass stand until about ripe, and then cut it and follow right up with the rake and get it right in. There is no fussing or bother. One can keep the men right at hard work all the time, and shove the haying right along. I will admit all this; but when your cows look pinched and unthrifty next spring; when their excrement is almost as hard and dry as a stone; and when the first warm days come along, and you have to begin "shoveling the corn meal into them," and every now and then have to call in the neighbors to help lift one up; when you have got a few hides on the fence, and the milk of your dairy will hardly pay the feed-bill; then, if you are not prejudiced, you ought to begin to "see where you missed it;" to see that the easiest way is not always the best. What was the trouble? Why, you had, for one thing, let your grass stand until it had lost one-half of its value; then you expected your cows to return you full value on it, but you couldn't cheat nature. The effect follows the cause; and for every dollar you saved in trouble at haying time, you may have lost five. This you have a perfect right to do, if you can stand such business; but have you any right to half starve those poor cows? Think of the suffering they endured, which you could have prevented if you had cut that grass at the right time; and then you would like, would you not, to see those cows all on their feet, strong and healthy, the hides all animated once more, their manure thin and healthy, as in summer time, and a good flow of milk coming from them without feeding them much grain? Wouldn't your prospect for milk this summer be much better than now? Will you think of this, and hire an extra hand, and begin your haying early another year, and get it all secured, if possible, before wheat-harvest? Your cows will thank you, and you will begin to have more faith in the stories you hear of dairymen who make $60.00 or $70.00 from a cow in a single season.

Another reason why hay is often left to stand too long is, that the farmer has too many irons in the fire, or too much to do. His farming is not properly arranged so as to prevent clashing. The farmer who undertakes too much often loses by it. Some crop must suffer. If the hay can be secured before wheat-harvest, well and good; you can raise wheat and not have any clashing. If a part of it has to stand over for two weeks while you are cutting and getting in your wheat, you may lose as much on the hay as you make on the wheat.

MY REPORT FOR 1885.

IS THIS A GOOD LOCALITY FOR HONEY? WHAT SIZE OF SECTION IS BEST?

THE last season here was again short; at least, we call it short. Doolittle would not think four or five weeks of good honey-flow very short, estimated by his experience of a good yield. The white-clover harvest lasted about five weeks, but it always takes bees here a week to get started, so they stored all their surplus, I might say, in four weeks. In that time I got 40 to 50 lbs. from my strongest colonies, together with a swarm. After July 4th nothing was done, except that a few managed to fill out a few sections already nearly full. This is nothing to compare with Mr. Doolittle's reports for 1885; yet, so far as my experience goes, bees gathered honey as fast during June as they ever do. It was evidently drought that cut short the white-clover harvest. Later in the season there was a great deal of heart's-ease, and the fields were yellow with Spanish needles; yet I did not secure 20 lbs. of honey from these flowers; and what I did get was stored in empty combs. They stored in the brood-chamber enough to keep 60 stands until the last of April, I think, but I shall have to feed some to carry them till clover season, unless fruit-bloom yields a great deal more than it has of late years. This later season was not too dry; the blossoms ought to have yielded honey. Why they did not, no one here seems able to tell.

THE SUMMING-UP.

I started into summer with 45 stands, which would have made about 30 good ones. I increased to 75 by natural and artificial swarming and uniting, besides a few swarms I lost. I obtained 900 lbs. of comb honey; one-tenth of it, perhaps, not very well filled out, and 400 lbs. of extracted, all from white clover.

Those 75 colonies I doubled down to 60 for winter. I think I shall average 15 cents per lb. for the comb honey, and a fraction over 10 cents for the extracted. I market all in Springfield, and the country and villages around. This result of 25 lbs. to the stand is rather small. The showing is better when I consider that nearly all was obtained from about 30 colonies, a number of which were not able to go into surplus boxes until the middle of June, bringing the average up to 40 lbs. But even that is no very great affair compared with the reports of our best bee-keepers. I am, however, better satisfied than ever before. I feel that I have worked to better advantage, and succeeded better than I have yet before done. I have certainly done a great deal better than any one else around here. The general verdict of my neighbors is, that bees do not pay. I should think not, the way they manage. Some with several colonies have not taken off 5 lbs. of surplus, and none of them very much. I suppose two-thirds of the bees will starve out as they did last year. I had just carried a case of honey into a store last August, when neighbor Ike came in. He looked at my honey, in nice Simplicity boxes, I tell you.

"Why, George, how is it that you can get so much honey when none of the rest of us can get any?"

"Simply because I take care of my bees—pay attention to them—put my time to them. To make any thing from bees you have to cultivate them the same as you would a crop of corn."

In June, 1883, an old gentleman about ten miles from here came to see how I fixed to raise section honey. He had then 35 stands, and he closed the year with 80.

"I do not do any thing with my bees," said he, "but hive them and take off the honey; but they always do very well."

A few weeks ago I saw him, when he told me he had gone from 100 down to 16, and the moth were taking them. He does not think "they do very well" now. I could tell several more stories of the same kind. When I compare these reports with many in GLEANINGS, I am led to inquire,

IS THIS A GOOD REGION FOR BEE CULTURE?

Does white clover yield more copiously in other localities than in this? Does the clover season last longer in other places? Here—Central Illinois—there is no basswood. White clover seems to be the only crop that can be depended upon at all. Heart's-ease and Spanish needle yield well sometimes, but they have failed the last three years, and fruit-blossom never has yielded much for me. In 1882 and '3 there was considerable honey raised; and if I had known as much then as I know now I could have produced 60, perhaps 75 lbs., per colony. But they were regarded as exceptionally good seasons here. Is this a comparatively good honey region, or is it even fair?

WHAT SIZE OF PACKAGE SHALL WE USE?

I can not agree with friends Root and Hutchinson, that a Simplicity section 1½ or 1⅝ inches wide is the coming box. The narrowest I have used is 1¾, and I am not going to order any more, I think. Why? Because they do not suit my customers. In Springfield a box that holds about a full pound goes very well. I have sold honey there in the old 1½-lb. and 2-lb. boxes, and the merchant who has sold as much for me as all others, there and elsewhere, told me once that he did not see but the larger packages sold as well as the smaller. This fall I took him a case of 1¾ boxes, and his customers did not like them. Nearer home I find that the largest boxes actually give the best satisfaction. That fact, and the fact that they are continually complaining about the price, makes me think more than ever what I said over a year ago, that it is not best to throw away all our old bulk boxes; for I certainly think that honey can be produced with less cost in that form. Certainly it will pay me to use several hundred large sections; and if it will pay me, why not others? Also, if they do not like honey in smaller than pound lumps in Springfield, I do not see why they should not dislike them elsewhere.

GEO. F. ROBBINS, 45—75 60.

Mechanicsburg, Ill., Jan., 1886.

REST FOR THE OVERWORKED.

MRS. CHADDOCK TELLS US HOW TO OBTAIN REST, AND STILL BE BUSY.

DOCTORS disagree, so do friendly advisers. I am fully persuaded that, if I had followed one-half the advice that has been given me, I should have been *non est* long ago. Now, they seem to have settled down on *rest* or *stir*. About half of them advise rest; the others say, "Stir out, stir out, or you will die."

I was in a large water-cure establishment once for a few weeks, and I then learned that to rich people the advice was daily given, "Rest is what you need, my good woman; complete rest; your mind is too active for your body, and if you do not rest you will land in the insane asylum." To the poor folks the same doctor said, "Stir out, stir out, young man; you don't want to go droning around here for ever. Use your will power—exert your thinking faculties, and get well."

One day the doctor lectured on "Rest." He said, "You want to lie down and rest, just as a horse or cow does when sick. Nobody has to tell a sick cow, 'You are better now, and I think you had better get up and go to eating grass.' No, sir; a cow just lies there till she gets well, then she knows it, and gets up and goes to eating. And don't keep all the time thinking about the money that it takes to keep you here; you had better spend every dollar that you have, and be cured, than live as you are living now."

It was a good lecture, and was applauded to the echo. Now, in the room next to ours was a poor young man who had stayed at the cure till he had spent all his substance, and yet was not healed, and the doctor walked straight from his lecture, with *rest, rest, complete rest,* still warm on his lips, and said to the poor young man, "Why, man alive, why do you lie here? Why don't you stir out? Stir out, I tell you. You have a thinking mind, do you not? Well, use your will power; force yourself to get up and out; take interest in something; you will die if you don't."

That convinced me that rich people ought to rest, and poor ones stir out. For my part I like the *stirring out*. I'd rather drive a mule team than play the piano. I can do it better, and there is vastly more fun in it; but part of the time I am not able to sit up, then I rest. As to Mr. Root's *resting* by digging the ground half an hour, that *was* rest.

Rest, according to my notion, is any thing that eases the strain on the nerves or muscles, or whatever is tired; and work that can be left at any minute whenever a fellow's back begins to ache is just the same as no work at all; it doesn't tire anybody. Now, if Mr. Root were baking a dozen pies, eight loaves of bread, and getting dinner for workhands, and waiting on a sick man all at the same time, and could not leave any of it till the dinner was over, I do not think it would be much of a rest. I like to dig in the ground for about ten minutes, then I want to change work with somebody. Sometimes I think that the pressure—the responsibility—the feeling that a thing *must be done*, is harder than the work.

As to going South, I had numerous invitations, but none from Florida, where I wanted to go. I had *warm* invitations from five States; and if I had had the dollars I should have traveled all around among the folks. As it was, I stayed at home and wrote love-stories; and the only geese that I picked were the editors who bought them of me. But I must go somewhere or see somebody pretty soon, for I have used up all the people I know—married them off and *deaded* them, and I now sigh for new characters. I do not think it is hard work that makes farmers' wives crazy, but it is the monotony—the staying at home for seven weeks, and never seeing any one but one's own family.

Vermont, Ill. MAHALA B. CHADDOCK.

PROF. COOK'S EXPERIENCE WITH MAPLE SYRUP, ETC.

A SIMPLE PLAN OF RESTORING MUSTY SYRUP.

FRIEND ROOT:—We thought we were the sweetest and most stuck-up people of the country at our house, as we have honey to sell and to eat, to give away and to keep. More than that, maple syrup from six hundred trees has helped to sweeten our food if not our tempers. Our relish for these incomparable sweets has made us glad that you at the "Home of the Honey-Bees" were equally sweet and equally "stuck up." In handling our syrup this spring we have discovered a fact of considerable practical and scientific interest. Through an accident, 5 gallons of syrup were put into a musty can. Syrup, like cream and butter, is very quick to receive taint from surrounding impurities, and so, as we might expect, this syrup was apparently ruined. I first boiled the syrup, and found the musty taste still pronounced and offensive. I then reduced a little of the syrup to sugar, and found it and the must still companions. After that I added equal quantities of syrup and water, and boiled for some hours till all was again reduced to the consistency of prime syrup, 11 lbs. to the gallon, when, to my joy, I found that the syrup was as fine as any ever eaten. I presume the same result would have been attained had no water been added, and the syrup repeatedly heated to the boiling-point and cooled off.

This is quite in line with the admirable experiments of Tyndall. He found that many fungi could be killed in his flasks, and the contents rendered sterile, by prolonged boiling and speedy sealing while hot, while boiling for a brief period did not render the liquids sterile. The theory is, that the liquids contain the fungi and the germs. The fungi are killed by brief boiling, which does not kill the germs. Prolonged boiling or repeated boiling either kills the germs or else develops them, after which a brief boiling destroys them.

This fact has much of practical value to suggest. If syrup is tainted in a sugar-bush by putting it in a musty vessel, it can be put in the front of the evaporator with sap, and again reduced, when all taint will have been destroyed. If any person has musty syrup, honey, or fruit, we note how the must can be destroyed. I have already suggested this treatment to two or three who have turned it to practical account.

Is it generally known that maple syrup will retain all its perfection of flavor, if canned and sealed while hot? We have had delicious syrup on our cakes all winter, and just as fine as when new. It is claimed by some of the Ohio sugar-makers, that, if vessels are filled full of the syrup when fresh, and then sealed tight, the syrup will keep as well as if canned hot. We are trying that with a little this year, and will report a year hence.

A. J. COOK.

Agricultural College, Mich., Apr. 21, 1886.

Why, friend C., is it really possible that you have a 600-tree sugar-camp? I would give almost any thing to see you out in the sugar-camp, directing sugar-making. We have had experience several times with musty syrup, and we never found out any way to remedy it better than scalding. But we have noticed this: That sometimes the scalding helped the matter, and then again it didn't; and you have probably given us the key to the different results at different times. I have repeatedly been told that adding water to maple syrup, and then boiling it out, always darkens the color. Do you not find this so? Here is something further from a friend near us, in regard to the maple-sugar industry:

WANTED, A BOOK ON MAPLE-SUGAR MAKING.

In making sugar this spring I have met with a number of important points on which I needed information, but could not get it. There are hundreds of maples about here that might be tapped with profit, if people could find out how to make a good article cheaply. Have you ever thought of a "Maple-sugar book," on the plan of the "Potato-book," the "Carp-book," etc.? In my opinion, such a book should not be written by an evaporator man—we can not afford to lay out $75 or $100 for a boiling-apparatus, and then sell syrup for 70 cts. or less per gallon. A $10 evaporator, a good arch, and proper information on how to manage the sap, the boiling, the canning—in fact, every thing, would prove valuable, I think.

As the primitive forest gradually disappears hereabouts, its place is taken by maples—some farms already having but few trees other than the maple. And there are not a few farms in this immediate vicinity that could tap from 500 to 1000 trees—a number that not many years ago seemed enormous.

If you conclude to do any thing in this line, I will try to do my share toward making the book a success by furnishing a list of questions that might, perhaps, be of some use to the writer or compiler.

ANTON LEISTER.

Brunswick, Medina Co., Ohio.

And now, friend Cook, can't you write this book, or get somebody to do it? I might add, that the finest syrup furnished us this season was not made with the evaporator at all, but simply with a common pan, boiling all the sap that ran each day, were it much or little, and keeping the utensils bright and clean, no matter how much trouble it might take to do it.

STRENGTHENING WEAK COLONIES.

DOOLITTLE'S PLAN OF DOING IT.

When spring arrives, most bee-keepers find that they have more or less weak colonies, even when their bees as a rule winter well; while now and then a spring finds some of us with a loss of nearly the whole apiary, and the few colonies remaining are mostly weak, or perhaps we have a part of the few weak, and a part strong. If many weak colonies are on our hands, and we are not anxious to augment our numbers, probably the best way would be to unite them till all are in comparatively good condition. But it more often happens that, when we have many weak colonies, we are the most anxious to save them all if possible, for we get many weak colonies only after a heavy loss during winter, in which case we are desirous to increase all we can, so as to utilize our empty combs before the moths destroy them.

Many ways have been devised to give strength to these weak colonies so as to keep them along till settled warm weather comes, so that they could build up; but most of them have proven failures when put in practice. The most general plan is that of giving hatching brood from the strong colonies to them; but as a rule this results in a loss of a part if not all of the brood; for the amount given must generally of necessity be more than the weak colony can cover and keep warm, while the young bees so hatched seem to lack the necessary vitality among so few old ones to keep the warmth up during cold nights; hence it often happens that all perish together.

If brood is given it is better to adopt the plan the editor did several years ago, which was to take a cake or biscuit cutter and cut out a small portion of a frame of brood, and all of that just gnawing through the cells, and insert this in the weak hive in the comb, which the few bees cover. However, this does not always work, as the editor well knows; besides, it mutilates the combs so as to spoil their beauty; and when wired frames are used it is out of the question altogether.

Well, after all my trials, I have at last struck on a plan which has so far worked to perfection, and by it I am able to put a weak colony right "on its feet" without materially injuring the strong ones. The plan is this: Take the wire-cloth box I have before described in Gleanings. Perhaps I had better describe it again here, so that the new subscribers can make one. Make a box of any size to suit you (I use one holding about six quarts), and cover the two sides with wire cloth. Through the top, bore a hole to admit the small end of a large funnel, such as is used by those who sell bees by the pound, and make a slide to cover this hole after the funnel is removed Now proceed to your strongest colony (if you have no such, one should be bought, if possible, as it will pay largely on the investment), and look it over till you find the queen. Put the frame she is on aside from the others, so as to make it impossible to get her in your box, when you will select a frame well covered with bees (or two partly covered). Now drum lightly on this frame so as to cause the bees to fill themselves with honey, and set it down by the hive. While the bees are filling themselves, put back the frame having the queen on, and adjust the hive, except leaving a space for the frame which the bees are on. As soon as they are well filled, adjust the funnel in the box, when they are to be shaken down through the funnel, and the box closed with the slide. After putting the frame back in the hive, and closing it, the box of bees is to be carried to a warm room and a blanket thrown over the box to keep it dark, when it is to stand three or four hours. During this time the bees will realize their queenless condition, and set up a great buzzing, telling plainly of their loss. Now go to the weak colony you wish to strengthen, and get their queen, which is to be put in with the bees in the box. To do this, set the box down suddenly so that all the bees will go to the bottom; then quickly draw the slide and drop in the queen, closing it again. Cover up again and leave until about sunset, or three or four hours more, when the bees will be found clustered compactly like a swarm. Now go to the colony from which you got the bees, and get a frame of hatching brood, without bees, and put it in the hive containing the weak colony, when you will at once hive the bees from the box on it. If the evening is at all cool I shake the bees from the box right on top of the frames so that none shall get chilled. I think all will see the "why" of the plan, without my explaining further.

G. M. Doolittle.

Borodino, N. Y., April, 1886.

Friend D., your plan will work all right, without any question; but you will excuse me for suggesting that there is too much machinery about it to suit *our* work. If I wanted to strengthen a colony during apple-bloom, or at any time when the bees are working fairly, I would just lift the frame—brood, bees, and all—out of any hive that could spare it, during the middle of the day, when most of the bees are in the fields, and set it in the hive that needs strengthening. I would be careful that the frame did not contain very much unsealed brood, however. As most of the flying bees are in the fields, the bees covering the combs in the middle of the day will be, as a rule, young ones; and with us, such a frame of bees will not quarrel nor be quarreled with, one time in ten. Just set them quietly between the combs of the weak hive, and let them get acquainted their leisure. If they do quarrel, a brisk at smoking will generally make them peaceable with each other.

MOSQUITO-BAR VEILS VERSUS THE GLASS FRONT.

REASONS FOR PREFERRING THE LATTER.

Some seem to think the objections to glass fronts very "obvious." Perhaps the glass fronts they have experimented with indeed bear their "obviousness" upon the *face* of them; but when any one claims that glass can not be so adapted to and inserted in veils as to render objections "few and far between," we are prepared to come forward and bear testimony to either his culpable ignorance or desire to misrepresent. We desire to present the claims that the glass front should have upon the favor of the progressive bee-keepers of our age.

Just here let me remark, that the bee keeper who is so reckless of the powers of vision that God has given him as to *strain* his eyes peering through a *no-glass* veil, deserves the punishment so surely to be meted out to him. What did friend A. H. K. Blood, of Quincy, Mass., mean when he wrote us it would have been worth thousands to him had he never seen a bee, rather than injure his eyesight as he had by using a veil without glass?

OBJECTION NO. 1.—"GLASS WILL BREAK TOO EASILY."

Then discard it from your windows and honey-packages. This liability depends upon the kind of glass, its manner of insertion, and the carelessness of the wearer. Some of our friends, little girls among them, have worn the same glass two seasons through. If an accident should break it, it is but the work of a moment to insert another. Better a little trouble this way and have the satisfaction of *unobstructed* vision.

OBJECTION NO. 2.—"TOO MUCH TROUBLE TO KEEP THE GLASS CLEAN."

My friends, if you expect to enjoy the good things of this life and shy around *trouble*, you will be "weighed in the balance and found wanting;" but let us suffer the "accumulated dirt of ages" to gather upon the glass, and we are not peering through so much *misery* as when trying to exercise a clear vision through a *mosquito-bar*, or Brussels net, if you please.

However, no need of "seeing through a glass darkly," when it is as easily kept clean as your spectacles.

OBJECTION NO. 3.—"MADE OBSCURE BY THE DAMPNESS OF THE BREATH."

This is *not so*, even in cool weather, when a five-inch hat-brim is used; but allowing it for argument's sake, how easy and convenient it is to take up a fold of the veil and rub off dampness! Should this, for two or three months in the North, cause us to lay aside, for the remainder of the season, this "blessing to bee-keepers," as J. B. Mason, of Mechanic Falls, Me., terms the glass veil?

OBJECTION NO. 4.

In this you say, "Beginners can't use them; for if a bee should get inside, the novice would ruin the veil knocking him out." What a compliment to beginners!

OBJECTION NO. 5.—"GLASS, BEING SO HEAVY, JOSTLES ABOUT SO AS TO BOTHER ONE."

We guarantee our contrivance not to "jostle;" veil complete, glass 4×6 in., weighs 2¾ oz.

We unhesitatingly affirm, that a practical glass veil is a nearer approach to a God-send to bee-keepers (and all should use veils when so comfortable under them) than all your pollen theories, hibernating theories, non-separator appliances, two-story brood-fixin's, etc. Why? Because thereby are preserved those precious organs of the body, the eyes.

Now, dear *mine fraternally*, in conclusion, let me say that, if you want to buy a veil from us, all right; but our improvements are not patented, nor will they be, contrary to the wish of our friends; and by sending to us we will either tell you where you can get the material we use, or furnish it to you at a slight advance on cost, and you make your own veil; but under no circumstances use window glass, or you will be forever disgusted with the idea.

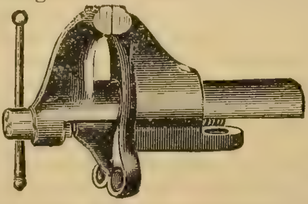
St. Albans, W. Va. J. C. CAPEHART.

Thanks, friend C.; but I don't quite see how you answer all the objections which you quote. Discarding glass from windows and shipping-cases because it will break when used in bee-veils doesn't necessarily follow. There is no possible substitute for glass in windows; as for shipping-cases, the very fact that the glass will break is a security against damage to the honey which it incloses, when handled by expressmen. Again, at the heading of the article you put "mosquito-bar veil versus the glass front." Against the former you seem to direct your arguments, and I think we shall pretty much agree with you there; but when you include a veil made of grenadine and Brussels netting, then I can't quite agree. I have used a veil of this kind six or seven different seasons in the apiary. I never had any difficulty in seeing, and do not know of any one who has injured his eyes by their use—I mean a veil with a front of a fine grade of *silk* Brussels netting. I have used several glass-front veils, and they all became more or less covered with steam from the breath, and half the time the glass *would* get out of place, so that one eye peered through the glass and the other through the mosquito-bar, making me feel vexed and cross-eyed. Although the glass may be a trifle clearer than the Brussels netting, yet as the latter never becomes greasy or covered with steam, in the long run the glass will be no easier on the eye. Lastly, the glass veil can not be carried in the pocket handily, and I always like to have a veil tucked away like a pocket-handkerchief for emergency, even if I do not use them now to any great extent. Nature's substitute, a full beard, does very nicely, besides catching the little rascal of a bee where his annoyance can speedily be put to an end. ERNEST.

HANDY TOOL FOR A SMALL AMOUNT OF MONEY.

A BENCH-VISE FOR ONLY 15 CENTS.

GREAT improvements have been made, not only in the *construction* of bench-vises, but also in the *prices*. A few years ago, no sort of a vise could be bought for less than a dollar or two. Finally some enterprising hardware men got one up that could be sold for 75 cts., and it had a large sale; and a little later a 50-cent vise was put on the market, and then one for 20 cts., which we advertised about a year ago. And now we take pleasure in showing you a very handy little vise for the almost insignificant sum of 15 cts. It is true, the machine is small, the jaws being only one inch wide, and the entire vise 3 inches long; but yet it is extremely handy for a great variety of work, just because it is small. The workmanship is surprising for so small a price. Prices are as follows:



OUR 15-CENT BENCH-VISE.

One, 15 cts.; 10, $1.40; 100, $13.50. If wanted by mail, add 6 cts. each for postage.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from April 15.

CHAPTER XV.

A PLANT-GARDEN.

Whatsoever he doeth shall prosper.—PSALM 1:3.

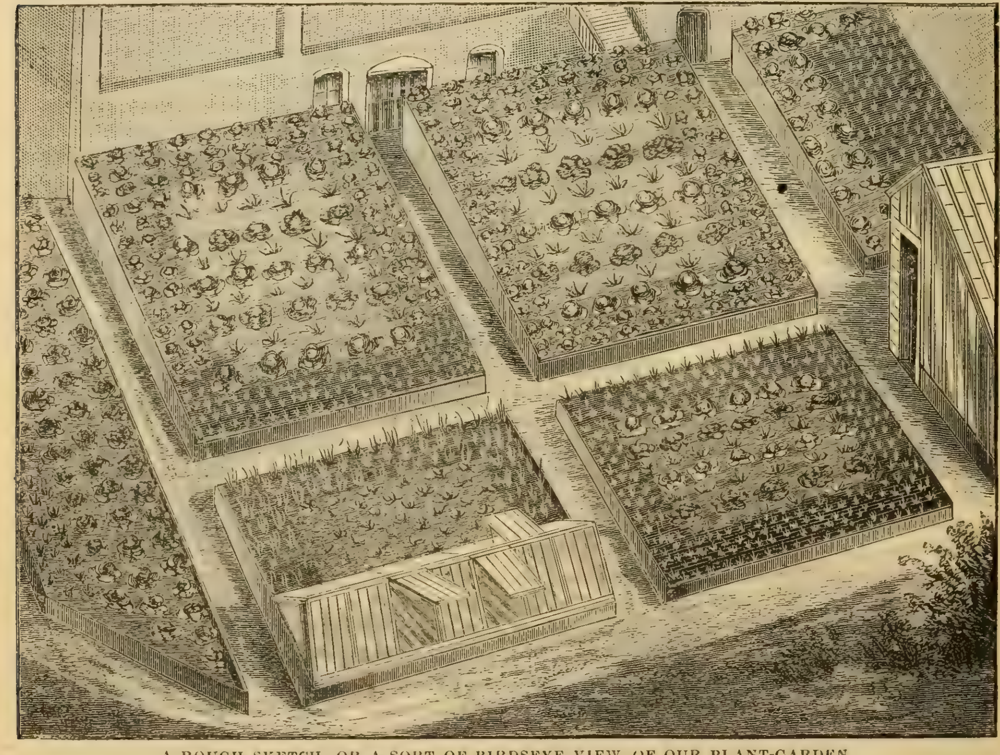
That is a pretty broad promise, dear friends, is it not? I do not know that the Psalmist meant to say that we should never have any bad luck, nor make any failures; but he meant that the man who is studying God's law day and night, and who delights to obey that law, would, as a rule, meet with success and prosperity. It is in the same line with the text that says, "All things work together for good to them that love God." Now, then, if I should tell you that your operations in gardening and poultry-raising would all prosper if you follow my teachings, it would be a pretty strong statement. Well, I do not intend to make such a statement; but I do mean to emphasize the promises in the Bible, each and all of them; and if, while your work is carried on, you are lifting your heart continually in love and praise to God, and working diligently meanwhile, you will surely meet with prosperity. You may have sickness and death, and tornadoes and whirlwinds, but there will be enough besides these to give you a thankful heart through all life's duties. Love is the mainspring of success in any thing. If you want to see plants grow, you must love them in the truest sense of the word; and if you want to see poultry do its level best, you must love the poultry, and love God through them, because they are his creation and his gifts.

It is now May, and we must move out of the greenhouse, out of the cold frames, and, in most localities, set aside the sash and other means of protection from the frost, and move out into the open field. Hand-work must, in a great measure, be laid aside for the cheaper and more economical labor of horses. But before stepping at once out into the open fields covering acres, we want to consider a sort of intermediate plan of gardening, as it were. This garden is to be an open field, only it is to be worked by hand, horses seldom if ever going into it at all, the ground being worked over by the use of the spade or spading-fork. Now, spading ground is very expensive compared with turning it over with a plow, and therefore we want the ground very rich, very soft, and friable. We want it so it will spade up and tumble down fine about as easily as you would spade up the peat in a peat-swamp. We want an admixture of sand and clay, however, to make it heavier than peat, for we can not well have it work quite as easily as peat. This plan of gardening is for cabbage-plants, tomato-plants, lettuce-plants, celery-plants, and all other plants that are called for, besides early lettuce to come first into market, a few extra-early cabbages, a few hills of cucumbers, to be forwarded by means of hand-glasses, to be described further on; early cauliflowers, beets, and onions, and, in fact, a little of almost every thing that you have learned by experience will bring a big price, or a price big enough to warrant more expensive hand-work in order to get it first into market.

This plant-garden may occupy from one-sixteenth to one-fourth of an acre, according to your market and requirements. It should be protected from winds by buildings, or tall tight fences on all sides but the south; then it should be most perfectly underdrained, or, better still, fixed on the plan of the new agriculture, as I have described in Chapters V., VI., VII. The ground should be manured to a depth of two feet, or three feet if you can manage it. It should then be worked up so light and fine that, when you step on it, your foot will sink in the soft earth; and when you get it just right you should put some long boards between the rows of plants to walk on, to prevent tramping the soil down hard while cultivating or gathering the crop. You can easily tell when the soil is in such a condition that it will be injured by walking on it. The amount of rain has something to do with it. Then, as soon as you can, if you are not near a town or city where water-works are accessible, you should have a tank, with rubber hose attached, to water your plants, or whatever else is in danger of suffering from want of moisture. As a rule, water is seldom if ever needed to bring forward the crops where the ground is in proper order, and sufficiently rich with manure. But there are times when it is desirable to set out plants, even during a spell of dry weather. In such a case we want to take our rubber hose and saturate the ground thoroughly where the plants are standing, as well as the ground where they are to be put out. If you have facilities for doing this, you can transplant right in the midst of a dry time in August, without losing a plant or stopping their growth. Having a hose so that you can flood or sprinkle every foot of your plant-garden when it is needed, is a great advantage. If you get water from the public water-works, you can usually buy it at so much per 1000 cubic feet. If you have an elevated cistern in or on the upper part of a building adjoining your plant-garden, you can catch sufficient rain water so it will not cost you any thing, and this, perhaps, is the cheaper plan.

A wind-mill pump, to draw water from a well, answers nicely, providing you can get plenty of water without going too deep. I should prefer the rain water, could I have my choice. This plan of garden ought to be located near a public road, so that you may get the plants cheaply and quickly when somebody calls for, say, only 5 cents' worth. It should be located near the dwelling-house, or near your shop or office, so that, no matter when somebody calls for the plants, some one of the household or establishment may be in readiness to wait on the customer at once. Having the back door open directly into the garden is an excellent plan. To manage this nicely, your dwelling should be on the south side of a road running east and west. Our factory is thus located, and this gives us a nice shady place to keep plants in view of passers-by, on the sidewalk, on the north side of the building. Boxes of freshly transplanted plants are thus in the shade until they get well rooted.

At the right of the picture you will get a glimpse of the greenhouse, shown on page 142; and at the left, in the foreground, a view of the cold frame, shown on page 139. The plan of the beds is about as it appears in reality, only the artist has greatly enlarged the pictures of the cabbages, lettuce, beets, etc. Three feet of each bed, next to the path, is occupied by plants of celery, cabbage, lettuce, etc., ready to sell to customers. The pair of stairs, of which you get a glimpse near the upper right-hand corner, leads to the store belonging to our factory, making it very convenient for any of the clerks in the store to go out and get plants whenever they are ordered. The operation is briefly like this: A hose is attached to the water-works near the greenhouse door. This permits it to be used inside of the greenhouse, or in any part of the plant-garden. When a customer wants



A ROUGH SKETCH, OR A SORT OF BIRDSEYE VIEW, OF OUR PLANT-GARDEN.

plants, the clerk catches up a paper bag large enough to hold the quantity asked for. He then goes out, catches up the hose, turns the nozzle so as to spray the bed where he wishes to pull plants. If we are selling them right along, as we are at this date, the ground is kept pretty well saturated, and this is just what suits celery. Enough peat is intermingled with the soil forming the bed of the plants, so that, when the plants are pulled, their bushy and fibrous roots bring along peat enough to dampen them just about right, when they are put into the paper bag, and then handed to our customer.

The plant-garden is a very attractive place, because it is such a novelty to our town to see plants growing so luxuriantly, and so much in advance of the season. Underneath these plant-beds are reservoirs, described on page 58; and it is presumed that the cabbages and lettuce have already sent their roots down into the water of these reservoirs. Whenever we have sufficient rain to leach through the beds, the leachings of the manure go into these reservoirs, and remain until wanted by the plants. The cabbages you see in the cut now measure two feet across. They are of the "Jersey Wakefield" variety that never grow very large, so we are expecting some rousing heads before many days. Some of the heads of lettuce weigh 1¼ lbs., and measure 18 inches across. We get 15 cts. apiece for them on our market-wagon. We have been selling radishes for several weeks, raised on this plant-garden, and beets are large enough to go on to the wagon now. An acre of such ground, planted to cabbages, would, without question, raise a crop that would sell for $1000. Of course, it would cost something to construct the reservoirs, and buy manure; but I think it would pay near a good market for early cabbages in June.

The borders of the beds were mostly made in February, by driving down stakes and nailing on top of the stakes 2 x 4 scantling. Around the larger beds we nailed drop siding on top of the stakes, and had it afterward painted, to make it look tidy. The smaller beds were made in the same way, using any rough refuse boards to be found around the premises. Raising the beds from the ground makes it convenient to handle plants as well as to do the necessary work. The tender plants were covered with sash in February, but we hardened them gradually so that the sash was used very little during the month of March.

TRANSPLANTING.

One great secret of working this plant-garden is to understand transplanting so as to do it surely and safely. The plants are taken from the seed-boxes in the greenhouse, and transplanted into the soil of these raised beds by means of the transplanting-frame shown on page 136. It is a good deal more difficult to transplant in the open air than to transplant in the boxes kept all the time in the greenhouse. Drying winds are very trying to tender plants just put out. If these drying winds are accompanied by a scorching sun, you will find the labor of several days all gone to naught before you know it. As a remedy for this, they should be shaded for a few days, after being put into the open ground, with light shutters made the same size as your 3 x 6 sash; that is, these shutters, or shades, should be used when you see the plants are suffering from the scorching sun and drying winds. The shutters had better be removed at night, whenever dew falls, or on cloudy days.

Something answering still better than the shutters is a shading-frame made of lath, the lath being half an inch apart. This protects the tender plants from the wind, and enables them to get some sunshine; but as the shadow is always moving, they get alternate sunshine and shade, which seems to suit them much better. It is especially important that celery-plants have this partial shading. When some of our beds looked as if the celery-plants were pretty nearly all dead, ten days' covering with these frames brought them up to full vigor.

This plant-garden should be manured with the very best old rotted stable manure, and manured heavily. On one little bed, 6 feet by 20, we shall get, for a single crop of lettuce, perhaps $10.00. Two good loads of manure were put on to give this crop, which were worth perhaps $2.00. The manure was thoroughly forked in, so that we have nearly or quite two feet of soil that will give an immense crop at almost any season of the year. Now after having put so much expense on a little piece of ground, this piece of ground must be kept constantly cropped; yes, winter as well as summer. As soon as the lettuce is off, put in beets, radishes, or plants, and keep it going; and along in the fall fill it with cold-frame cabbage-plants, and keep it doing something right through the winter. Some of the papers are inclined of late to call plants raised very early in the spring about as good as the cold-frame plants; but I tell you, friends, they are nothing like them. Our cold-frame cabbage-plants that have stood heavy freezes over and over again will stand drought, insects, and almost any thing else, in a way that plants not so hardened can not do. The same is true of lettuce-plants. The hardened cold-frame lettuce-plants are ready to boom when plants taken out of the greenhouse would shrivel up and die. It is true, plants may be taken out of the greenhouse, and hardened off in cold frames, say in February; but we think it a good deal less trouble to get good strong stocky plants in the fall, and keep them so all winter. Now, then, let us remember that this plant-garden is to be made to work every week in the year.

CHAPTER XVI.

Whatsoever a man soweth, that shall he also reap.—GAL. 6:7.

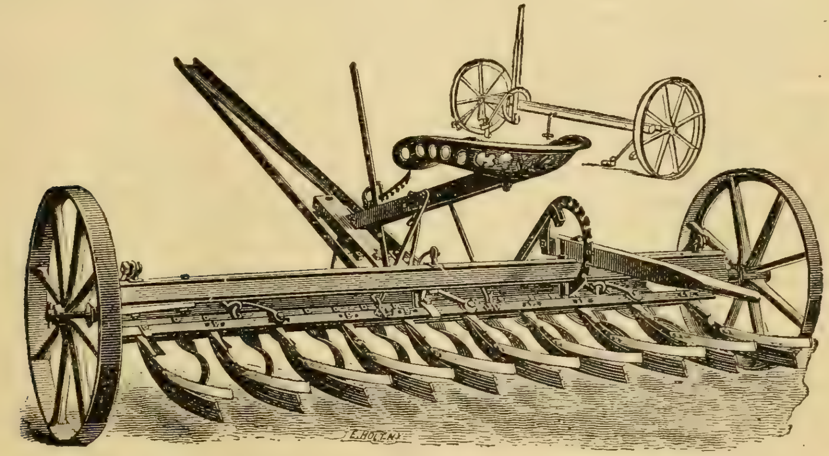
We are now ready to consider the growing of crops on a larger scale than heretofore; and as these papers are written mainly for those of but limited means, as I have remarked before, they may not, perhaps, apply to all of you, although the general principles are the same, whether you work on a large scale or a small scale. Many who are out of employment have no ground of their own, not even a little patch big enough for a plant-garden; but it seems to me one of the first things I would aim at, if I were so situated, would be to get a little piece of ground of my own. I would cut off some of the luxuries in the way of food and clothing, in order to save enough to buy a little piece of ground. And now I hope you will not think I am striking off suddenly into a piece of eccentricity when I say that this piece of ground should be in the form of a *long strip.* It is true, it takes more material to make a fence to inclose a long strip of land than it does to inclose a square lot; but for all that, we want the long strip. If you can get a piece of ground for a plant and vegetable garden half a mile long, you are a lucky fellow: if you can make it a mile, you are still more lucky. Do you want to know why? Well, read the following extract from Landreths' price list:

IMPORTANCE OF HAVING YOUR GARDEN LAID OUT IN LONG ROWS.

The old style of gardening, laid out in squares, to be dug and cultivated exclusively by hand, is becoming a thing of the past. The vegetable-garden is now laid out in parallel rows, or drills, ranging from two to three feet apart, and the cultivation of the greater part is done by horse power, as has been so frequently taught. The site should be the best obtainable with reference to the soil, exposures, and topographical features; the area should be large, and every thing done upon liberal and practical principles; the seeds should be all sown in drills, or rows, so as to be adapted to horse culture. Hand labor is the dearest of all, and should be avoided. The land, if circumstances will permit, should not be of a less length than 75 yards, and may with advantage be extended to 200, according to the quantity of vegetables required. Long lands, where animal power is used, are much to be preferred to short fields, as much time is saved in turning; for example, a plow team in a journey of eight hours, plowing land 78 yards long, will spend 4 hours and 39 minutes on the head lands; if the furrows were 274 yards long, the time spent in turning would be but one hour and nineteen minutes. The tillage of the garden should be the most approved labor-saving implements, wheel-hoes for hand use, scarifiers and cultivators for the horse. The seed should be sown with hand-drills, and fertilizers of the guano class applied with a similar apparatus, and, without interfering with the labor of the farm, be made to yield vegetables in profusion, when, if the spade and hoe are relied on, they are produced in stinted quantities. The amateur gardener, and expert as well, should make out a list of the varieties of vegetables he desires to have, and then lay off on paper a diagram of his garden, assigning certain rows to each sort.

Just think of it, friends! Four and a half hours out of eight may be spent by an expensive man and team in simply turning around his horses; whereas, by a little different management, these four hours and more of the hardest and most fatiguing part of the work may be reduced to one hour and nineteen minutes! Do you know why everybody hates to plow a garden? It is because there is so much turning around to be done. This turning around is so trying to the teamster that he loses his temper, and calls his horses "fools" or worse names. The horses doubtless lose their temper because they can not see any reason for so much pulling and hawing about; being called fools and idiots because they do not understand nor comprehend, and like phrases. I once heard a man complaining that there was not a teamster in Medina who would plow a garden for less than $1.50.

He thought the price was next door to swindling. Well, I presume the teamster did not want jobs of plowing village gardens, even at that price. Terry takes up this matter with great vehemence in a chapter or two of his Potato-book; and this little book has been the means of making a reform in this very matter. The objection to plowing land in long strips has been urged, that many farmers want to plow their land in one direction one year, and at right angles to it the next year, to keep the ground level. Well, if this must be done I would have my fields half a mile square—if I could. I have sometimes thought I should like a field so long that I could start down one row after breakfast and get back on another just about dinner-time. The horses would have to turn around but once in the forenoon. I do not know but I could afford to stop and get a drink of water, and give the horses some, at this one turning; and if I turned near a public road, and a neighbor should come along, it might not be out of place to chat with him, say five or ten minutes before I started on the back track. On our ten acres here at the Home of the Honey-Bees I have been greatly tried and vexed because so many of the men I hire would want to stop and visit every time they came to a place to turn around—especially if that turn-around happened to be near a public road. I do not like turning around, any way you can fix it. It is vexatious and trying to the horses as well as to the driver, and it is a shameful waste of time. We almost always plow around our piece of ground, and harrow around it, in order to avoid, as much as possible, turning squarely about. It is much easier for the team to make half a turn than to make a complete turn clear around; and when horses are tired I can see from their very looks and actions how they dread being pulled right squarely about while some awkward piece of machinery has to be pulled and hauled around also. Within the last few days we have had a pair of wheels put on our Acme harrow, so that, whenever we have to turn abruptly, we can, by means of a lever, raise the knives clear out of the dirt, so it turns as easily as a cart; and I tell you it is a relief to me, I am sure, and a relief to the horses. This Acme harrow on wheels, or with a sulky attachment, as it is sometimes called, pleases us so much that I will give an engraving of it.



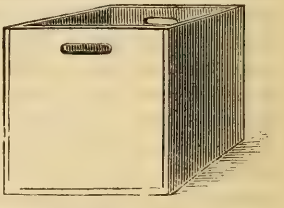
ACME HARROW WITH SULKY ATTACHMENT.

The wheels can be attached to any Acme harrow already in use. I prefer the Acme harrow to any other I have ever used, because of the cutting motion of the knives, which chop every thing up, but never catch and break the machine, or jerk the horses unmercifully. You can run it over roots or stones or brush, long manure or corn-stalks, and it cuts them to pieces like taking a long butcher-knife and slashing it repeatedly across the article to be worked up fine. You will see these knives will run over soddy ground, and work it up fine without turning up the sods or turning them over. It simply cuts them in pieces, and lets them lie where they are. By means of the lever right before the driver, the knives are instantly pulled clear off from the ground, so that you need not cut up the soil when you don't want to. By moving the lever either way you raise the *wheels* clear off the ground, thus putting all the weight on to the knives, so as to make them go down deep. By repeated harrowing you can get the soil so fine and soft that the knives run in the dirt clear out of sight, moving it about, reminding one of water behind a propeller-wheel. While we are on this matter of turning around with a team, I want to speak of something akin to it. It is what an old friend of mine calls

"TURNING-AROUND GROUND."

This turning-around ground is a space of twelve feet, without any thing being planted on it at all, at the end of every piece of ground. He claims that it takes 12 feet to turn about the horses and cultivator, and that it is economy to plant nothing on this twelve-foot strip. In fact, he recommends that every market gardener have a road twelve feet wide clear around his whole farm ; and this road, at the ends of the rows, is to be used for the turning-around business. It lets the cultivator go clear up, or pretty nearly up, to the last plant, and it lets the horses turn about and start in the next row without stepping on any thing. I do hate to see nice crops trampled down by horses. Well, I have carried this doctrine of the turning-around ground a little further by plowing our land so as to throw the rich vegetable mold from this twelve feet right over on to cultivated ground. At one place, where the ground was remarkably rich, I had it shoveled off clear down to the yellow clay, and over on to the land adjoining, giving me 15 or 16 inches of rich vegetable mold, instead of 7 or 8 inches.

Now, then, if you have got your long strip of land planned for big crops, let us carry out some principles on it we had in our greenhouse beds and our plant-garden. Make the ground clean, level, and free from stumps or stones or trees. Shade-trees are nice in their place, but we don't want them on ground that has been manured up to the standard for market-garden stuff. The trees must go or the vegetable-garden must go. Neither can we have stones in the way to bump the plow and cultivator, and rasp one's feelings when he is tired, and disposed to be cross. I would pick up every stone the size of a hen's egg, or larger. By the way, when I was a small boy I used to think that picking up the stones off from a field was the dryest, dullest, and most monotonous work I ever endured. Do you think it is any thing very wonderful if I find that the small boys and small girls who come to me and want work feel the same way now, about picking up stones, roots, etc., scattered over our grounds? Perhaps not; but somehow or other I enjoy this work so much now that I just feel happy to go out with the children and pick up stones. Yes, I feel happy to go out and pick up stones alone, because I feel that every pebble got rid of from my ground makes it just a little bit nearer to perfection. I have figured a good deal in regard to picking up stones. Last year we used Terry's potato-boxes, such as are figured in the adjoining cut.


TERRY'S POTATO BOX.

I would tell the small boys and girls who were asking for a job, to carry a lot of these potato-boxes out into the field, scatter them where they would be handy, then fill them with stones, or, at least, put in all the stones that were very near the boxes. Then a man with a stoneboat went around and lifted the boxes on to the stoneboat so he could draw them where they were wanted. Do you ask where the stones *were* wanted? Why, you will find the place by turning to page 58. The way we gather stones now is when we are rolling the ground. We have an iron roller drawn by two horses, with a stout plank box on top, made with sloping sides. A man drives the horses, and three or four children follow along to pick up the stones and pitch them on to this plank box. The box is ironed strong enough so the heaviest stones they can lift won't hurt it. Some way the children seem to enjoy it better to work along with a man and a team. When the roller-box gets full we drive to a reservoir left open on purpose to take the stones, and the children have the fun of pitching them into the water. We have just been clearing the field of stones, down across the creek. There is no place handy to put them, but I remembered a hole where water stood most of the year. I had one of the boys dig the black mud out of the bottom of this hole, and throw it up around the sides. Then we put all the stones they could find into the hole and covered it, according to the plan of the new agriculture, with flat stones and tinware, and then raked the black mud and dirt that was shoveled out, back over the stones, and we now have level ground on which to raise crops with the new agriculture underneath it. Almost every piece of ground has low places enough to take up all of the stones, and the work is not very hard nor very expensive either. If these who do it enter into the spirit of getting rid of the stones, filling up holes and getting the rich decayed leaves usually found in such sinkholes upon the surface, they won't consider it very hard work. Some of our boys thought it was a little hard to go down into this nasty mud, but I furnished them a pair of rubber boots at my own expense, and we don't find it disagreeable, unless it is the nasty smell that arises when such places are shoveled out. I rather like the smell, because it reminds me that valuable fertilizing material is stowed away there.

While speaking of the roller, I might remark that we consider the tool a very valuable one when used judiciously. It should never be run over plowed ground, however, unless the soil is so dry that it packs it no more than to mash up all the lumps, and level the surface. To get ground real nice for setting out plants, or for almost any other purpose, we go over it with the roller and Acme harrow alternately. Roll it twice and harrow it twice, and your ground ought to be in beautiful order for sowing the seed.

By the way, perhaps you would like to know how I like to see the ground prepared for sowing seed or for setting out plants. But before describing my plan I want to say that you will have to be governed a good deal by circumstances—the implements at command, the size of your land, etc. Ground that has been plowed the year before, as soon as it is dry enough, we go over with the Acme harrow, then roll it until it looks as if it might do very well for sowing the seed. Well, when the ground is soft and fine and nice on the surface, we go over it with the manure-spreader, and spread twenty loads to the acre, of the best manure we can find; then the Acme harrow goes over it again, and stirs the manure well up with the surface soil, until the ground is fine again. It is now ready to be plowed.

In regard to plowing the ground, I suppose almost any old farmer can tell you more about that than I can, if you do not know it already. We want to do a nice job at every step, and we want nice plowing to begin with. After it is plowed nicely, go over the same operations again; *i.e.*, harrowing it with the Acme harrow, rolling it, picking off the stones, harrowing it again, another putting-on of manure with the manure-spreader, another thorough harrowing; then, if the ground is dry enough, finish with the roller, and you are ready for putting in the crop. I have practiced subsoil plowing to some extent, but so far I have not seen any very great advantage resulting therefrom.

The entire difference between loss on the one hand and gain on the other, may depend on a little management. During these beautiful growing days in the month of May it is of the utmost importance that your work move right along without any hitches or breaks. If you are going to succeed, you can not go visiting very much, nor attend picnics or excursions. If you are going to be guided by me, you must get your happiness from your work. Your mind should be keeping pace with your body. Plan all your work the night beforehand, so as to be ready to take right hold as soon as you wake up in the morning. When you get through using one machine, have your mind fully made up what one is to come next. Decide whether the whippletrees, neckyoke, and clevises are all where you want them. Don't go off across the farm to hitch on to a tool, and find you have forgotton the doubletrees, and then have to go back after them. I have known men who would get the doubletrees, and then would go back again to get the neckyoke. If you work in that way you will surely fail.

Another thing, doubletrees and whippletrees frequently break. I do not know that it is practicable to make them so they won't break. It might be done, it is true; but you would have to have them so heavy that you would probably lose in another way in the end. But, be sure of this: That there are surplus whippletrees ready to be put on at a moment's notice. I would also have surplus bolts and burs nicely put away in the tool-house, or wherever your tools are kept. Have oil-cans, and tallow also, in readiness, to keep all your tools in good working order. Be sure that wrenches, suitable for the work they are to do, be in readiness near by, and make it your business, sleeping or waking, to be ready to push ahead in spite of accident and emergency.

When the weather is fine, decide exactly what you are going to do the moment it rains; or, if you keep a hired man, have work saved up in readiness for him during a rainy day. Do not, under any circumstances, let him do work during beautiful weather that can just as well be put off until a rainy day. Hired men will do these things unless you keep a careful watch on them. Neither will it answer for you to set a big strong man at something that a woman or child could do equally well. The brisk competition that is now kept up in all kinds of business is such that you will surely fail if you are guilty of this kind of folly. There may be circumstances, it is true, to justify doing differently from what I have just intimated; but bend your whole energies to the work of deciding how you can accomplish most with the least expense. Do not put great stout horses on work that can be just as well accomplished with one horse, and a light one at that; and don't set a great stout man at something that a child can do better and quicker. Children enjoy work if their work is planned wisely for them; and they are far happier when doing good somewhere, than if left to their own devices.

Perhaps you object to all this fuss to get your ground ready for a crop. Well, it is true you can go along and put in your seed after the usual plan, and raise a crop; but, my friend, if you are going to raise a crop that will bring you $1000 for the proceeds of a single acre, you have got to put labor and capital on that crop. To-day our market-wagon is selling heads of Boston market lettuce at the rate of forty or fifty a day in our small town of only about 2000 inhabitants. The largest heads bring from 10 to 15 cts. This morning I myself cut two heads that weighed 1¼ lbs. each. Now, we have never been in the habit of using very much lettuce at our house. My wife has often objected, because it was so much trouble, especially when I brought in a lot of lettuce just before breakfast was ready. Since we have got to having single heads that weigh a pound, however, she says the case is entirely different, for all she has to do is to strip off a few of the outside leaves, and the interior of the head is cleaner and nicer than any washing can make it. It is no trouble at all to fit it for the table, and I can assure you it is no trouble to dispose of it after it is on the table. The secret of getting these large, beautiful, crisp, delicious heads of lettuce is, however, fine tilth and lots of manure. Such heads of lettuce can be easily raised for the market so as to be ready every day in the year; and I imagine it would be a pretty hard matter to overstock almost any market. Here is a crop that will bring you money every day in the year, and yet it has almost no insect enemies, and is almost sure if you have your ground in proper order. Now, what do you suppose an acre of such lettuce will bring? And after you get your ground in trim to raise heads of lettuce that will weigh over a pound, on every square foot of its surface, it will yield an enormous crop of any thing. Just figure up the number of square feet in a mile; cut off one figure, and you have the number of dollars per acre that your stuff ought to sell for. Very likely you urge that no such an amount as an acre will grow or can be sold in a locality. That may be true, and then it may not be true. When you get more than your home market will take, just send samples to the right kind of a man in some large city. As an illustration: We found we had more "Jersey Wakefield" cabbage-plants than would be wanted in Medina. We did not write to the city of Cleveland to see if they wanted any. We simply sent a basketful of plants for their inspection. Here is what the commission house wrote:

> The cabbage-plants are rather large, but they were taken readily. We can allow you 30 cts. per 100 for cabbage, and $1.00 per 100 for tomato. You might send us 500 cabbage-plants next Monday, if prices suit you, and about 200 tomato. But we need Acme, not Trophy. A. C. K.
>
> Cleveland, O., May 6, 1886.

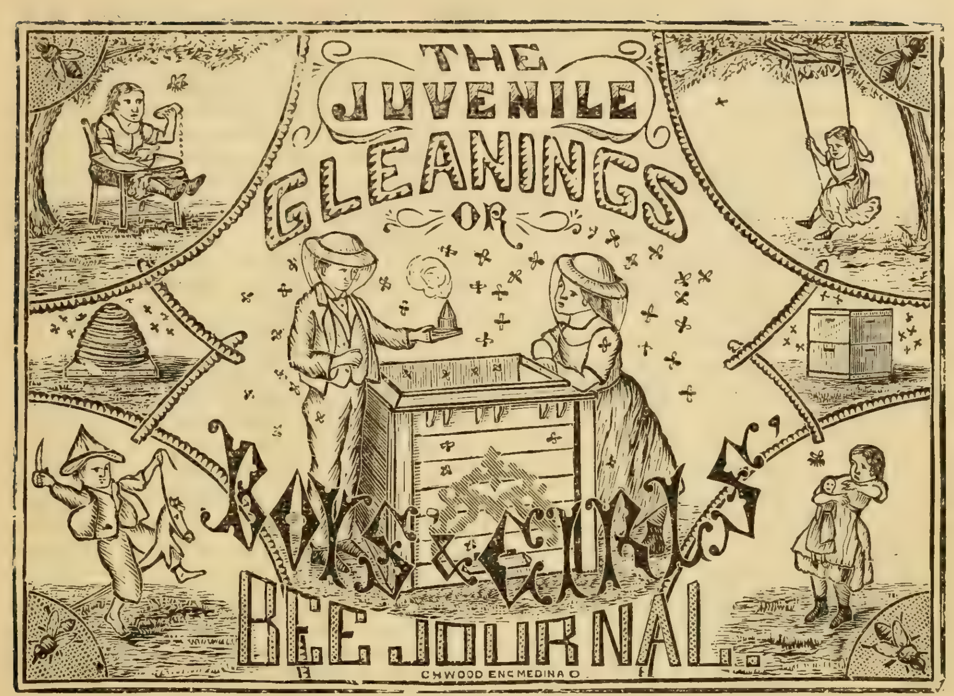
A few days after, comes the following:

> Please express at once 300 Acme tomato-plants at $1.00, and 500 Wakefield cabbage-plants at 30c.
>
> Cleveland, O., May 11, 1886. A. C. K.

Now, friends, please figure out the profits on an acre of ground devoted to cabbage-plants or tomato-plants, at the above prices. It is true, you will need the aid of a greenhouse, cold frame, or hot-bed, for plant-growing; but these are not difficult to command. Please don't imagine, now, that I advise every one to go to raising lettuce, cabbage-plants, and tomato-plants. That is not the idea at all; but I do recommend that you who are out of employment, spending your time in loafing, or something worse, do get hold of a little piece of ground somewhere near you and make it give up the treasures God has wisely placed within your reach.

We will suppose your ground is underdrained (or, better still, fixed something on the plan of the new agriculture), nicely plowed and harrowed, stones picked off, and every thing ready for the planting of the crop. How shall we put in the seed?

To be continued June 15, 1886.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

Thinketh no evil.—I. COR. 13:5.

WELL, friends, here it is along toward the first of the beautiful month of May. The apple-trees are in bloom, the bees are rejoicing, and the weather is so fine that it seems to me every boy and girl ought to be ashamed of themselves if they can not rejoice also. We have not had a bit of frost for several weeks; in fact, we have 2000 tomato-plants growing nicely out in the field, and some of them are more than a foot high, and covered with blossoms. A great many old heads are shaking wisely, and they tell me I will "catch it." But I am willing to take my chances. If the frost comes I will do the best I can to save my plants; and if I *don't* succeed, I am going to be happy any way. There are plenty more fine ones in the greenhouse. for a reserve to fall back on.

Well. it seems to me the bee-friends are busy and rejoicing too, for orders are coming in as briskly as we ever saw them before at the Home of the Honey-Bees; and, as a consequence, great numbers of neighbors are all round about me; in fact, for a few days back it has seemed as if it were my great privilege to give work to almost every one who applied; that is, with the usual promise not to drink, swear, nor use tobacco. There are so many of them, that I have some in my employ whom I could not call by name if I should try to. This brings me to what I want to say to you to-day.

Since we have put down the price of foundation, it has made a big boom in what we call the "wax-room." It is almost as full as a schoolroom now, and most of the time it is almost as quiet and orderly as *some* schoolrooms. The wax-room is mostly in the hands of girls and women. Mr. C., who has charge of it, says he does not believe it is, as a rule, a good plan to have many small boys and small girls together. They get to be so bubbling over full of fun that they can not attend to their work as well as if the boys were kept out, or in a room by themselves. With the older hands it does not make so much difference—that is, when they are old enough to behave themselves like ladies and gentlemen. In that case, I have sometimes thought that it was an excellent plan to have the sexes together. Well, with the rush of business in the wax-room, and the number of hands employed, there are more or less complaints of mistakes, about inferior quality of work, etc. Several times customers have complained that the base of the cells is not thin enough. This is caused by running the machines with the rolls too far apart. The other evening the man who makes foundation-mills told me that there were too many hands turning the adjusting-screws to the rolls. I told him I thought no one ought to touch those screws except the foreman of the wax-room. He said he had spoken to him about it, but that he replied something like this:

"The girls complain that the rolls turn too hard, and then they loosen the adjusting-screws, because that makes the rolls turn easier.” Of course, I was quite vehement about the matter, and I declared if we couldn’t find some way to make the girls *obey orders* it would be funny. Next day a piece of foundation came by mail, the letter saying that a ten-pound box we had just sent was all like it, and that he couldn’t use it at all, because it was too thick at the bottom. I took the letter and started for the wax-room, with a determination to straighten things up *thoroughly*. When I got down one pair of stairs, something began to say, “Be careful, Mr. Root. Remember what you profess, and bear in mind that the saving of souls is a thousand times more important than having foundation just as it ought to be, even though it is, without question, your duty to be faithful and honest to those who send you their money.”

In answer to the above, I thought something like this:

“Yes, this is all true; but this is a serious matter, and one that has come up over and over again, almost every season, and it needs to be straightened up *decidedly*.”

The still small voice ventured, as I was going down the second pair of stairs, something like this:

“Well, in any case will it not be better to be *very gentle*, and find out first whether there is not some mistake about it?”

I had been taught by so many, *many* cases similar to the above, that it is *always* safe to be very mild and gentle, that I concluded I would, although I didn’t feel like it. I asked the foreman of the room about it, and he laughed a little, but said that at least one of the charges was a mistake. He didn’t say that he couldn’t *make* the girls stop turning the adjusting-screws. He is a good Christian man, and, seeing by my face that I was disposed to be gentle and kind, he suggested that I should go and talk with the girls about it. Just now I want to confess, that, since my health has been failing, I have not been in the wax-room very much, and perhaps the same is true of a good many other rooms. As soon as I came among them and saw the crowd of anxious faces, many of them being comparatively new to me, I felt ashamed of myself right away. I pleasantly asked them some questions about making the foundation thin; and when I reassured them so they could talk freely, I discovered that they had been having a good deal of trouble and worry just because they could not get foundation to come off the rolls without tearing, and have it as thin as they knew we wanted it. One of them said, “Why, Mr. Root, we have wasted so much time in trying to get the wax to come off without tearing, from this little mill, that we really felt as if we must do something to prevent robbing you by charging for our time when we accomplished nothing. By turning the screws up a very little we could make it come off nicely. See. Don’t you call this sheet pretty fair?”

Well, it was “pretty fair,” but not quite what many of our customers would like, in the way of a thin base. My informant added: “But, Mr. Root, as soon as we got this last mill” (we had that day been obliged to add still another mill to keep up with orders, and this last was one of our finest brand-new ones) “we have no trouble in making beautiful foundation. Just see what nice work they are doing with it.”

So you see, dear friends, that the trouble was not with the girls at all, and it was not with the foreman; but it came from a mill that sometimes had a way of acting badly. May be you have seen machinery given to such tricks. I replied that they should have the nicest mills that could be made, and plenty of them too, for we could not afford to waste time on any thing short of the best.

Now, then, what a sad, sad thing it would have been had I been hasty, and gone in among that anxious little crowd, and scolded and found fault when they were doing the very best they could, and were worried and troubled because they could not do any better. Why, it would have been a cruel, *cruel* thing. And suppose one of them should have felt in her heart (for I am sure she would never have spoken it) “That Mr. Root, who talks so much in the prayer-meeting, and writes such nice things in his bee-journal, is, after all, a cross, hasty, and unreasonable man.” As I think of it, I can only say over and over again in my heart, “Thank God, thank God for the promptings of his holy Spirit that bade me be gentle and charitable while I was going down those two flights of stairs.” Why, when I look into my own heart, and see the great heaps of uncharitable feelings that lurk there, ready to burst forth, and ready to jump at conclusions upon the slightest pretext — ready to imagine that everybody is evil, and lacking in conscience and truthfulness, it appalls me. May God have mercy on me a sinner; and may his holy name be praised that he has taught me to hold on, and to put a check on these feelings, that they may not come out and do harm; and may his great love so fill my heart that there may be no room for even uncharitable thoughts. May kindness and love toward all humanity, toward the stranger within our gates, as well as those who have known me intimately and well, help me to remember the little text at the head of our chapter, “Thinketh no evil.”

FROM JAPAN TO PENNSYLVANIA.

AN INTERESTING LETTER OF THE JOURNEY, BY THE SAME LITTLE GIRL WHO TOLD US OF JAPAN TWO YEARS AGO.

DEAR MR. ROOT:—What do you think has become of your young Japanese (?) friend? or have you given the matter much thought? I had intended to write to you of our expected departure from this “Sunrise kingdom,” but on account of being so busy with our preparations for the same I was unable to do so; and when we got here I entered school, which, though quite novel, was equally a busy experience. As we are having a week of vacation at present, I have taken this rainy afternoon to write to my old friends of the adventures I have experienced since leaving Japan last October.

Our voyage, which lasted about 17½ days, was delightful—the last day especially being interesting, on account of the shoals of porpoises which raced with the ship, the groups of whales spouting in the distance near the coast, the flying fish, sea-serpents, and, most of all, the sight of dear old America, though the first glimpse was of the bare sides of the hills bordering on the coast.

After a few days of visiting at San Francisco we started on our journey across the continent. After we left the great ranches and enormous trees of California, the scenery following was quite uninteresting. The Nevada plains and hills were studded with clumps of sage-bush which soon grew monotonous; but the Great Salt Lake in Utah was interesting, and *I* thought pretty. The mountains on the opposite side showed signs of breaches quite near the summits.

We noticed some very curious and beautiful cañons, waterfalls, and glens, in the Rockies; but we passed some of the most noted during the night.

I thought Indiana's rolling surface, large groves, and romantic scenery a lovely contrast to the dreary, treeless plains of Nebraska and Kansas; but when we came to Ohio I was charmed, especially with Cleveland, the Forest City, where we spent a short time. I went around the city a little, and saw the great aqueduct, which cost several millions of dollars; and we saw the cemetery where Garfield is buried; and we also saw beautiful Lake Erie.

I wish I could visit you at Medina; but circumstances were such we could not stop, and we came on to the "Knickerbocker" State, with its great farmhouses and whitewashed fences which really struck me first.

I entered school in the beginning of January, and have enjoyed my first school life exceedingly. I am attending a seminary for ladies and gentlemen, which is under the auspices of the church. The teachers are all very pleasant, and we have strictly moral influences. The name is Schuylkill Seminary, and it is at Reading, Berks Co.; next fall, however, it is to be moved to Fredericksburg, Lebanon Co., where mamma expects to settle down.

With kind regards to your family, and best wishes for the prosperity of your magazine and business, I am as ever, sincerely yours, **Ada M. Krecker.**

Norristown, Pa., March 29, 1886.

Some of our readers will remember that this same little girl wrote a letter over two years ago in regard to the life and customs of the people in Japan. We also had an engraving made at the time, of a Japanese lady riding in a "palanquin" (see page 127, 1884). We are glad to welcome her back to this country, and hope she is educating herself to go back to a life of service for the Master. **Ernest.**

HOW A LITTLE GIRL STARTED IN BEE-KEEPING, AND SUCCEEDED.

HOW SHE MANAGED 5 SWARMS OF BEES THAT FLEW OUT AT ONE TIME.

FATHER has kept bees for eight years. Three years ago he said if I would take the bees and racks out of one hive, and put them in another hive I could have them, when I got them out. He told me to put them back in the hive I took them out of, for they would not go into the other hive. This hive then was mine. They did not swarm that summer. The next summer they swarmed twice. The last time they swarmed, father and mother were away from home. While they were gone, five stands swarmed. I got two to alight; two I threw water on, and drove them back, and mine I threw water on. The bees got nearly all out when the queen came out. I ran into the house and got two tablespoons and caught the queen between the two spoons, and the bees went back. That winter one of my stands died. Last summer they swarmed twice. One day last summer there was a swarm came here. Father said if I would hive it I could have it. This I did, and I had four stands then. These made about 80 lbs. of honey. Father got about 3000 lbs., nearly all comb honey. He put 77 stands in the cellar, and they are wintering well. We take Gleanings, and mother says she can not get along without it.

Grace Jewell, age 14.

Shell Rock, Butler Co., Iowa, Mar. 26, 1886.

Thank you, friend Grace, for your very excellent report. You are the first one, if I am correct, to demonstrate the soundness of Mrs. Harrison's suggestions (see p. 317; i. e., that the children have bees of their own) and report what *they* have done with *their own* capital. I don't think your father regrets at all giving you the swarm, on the condition that you could accomplish a certain thing with them; and now you are able to perform most of the operations in the apiary successfully. I doubt very much whether one of the veteran bee-keepers could have managed those five swarms as well as you did, and your report of how you managed them is certainly interesting. You say that you drove back two swarms with water. Did you use the spray of a force-pump, or did you simply dash water on them with a dipper? I should also like to know how quickly the swarm returned after you gave them a shower-bath. You know it is doubted by some whether throwing water has any effect in inducing the bees to cluster. — Your queen-cage of two spoons is quite novel. It seems to me there would be some danger of killing the queen. However, in your hands no doubt it answered very well. You have done so well that I think you certainly deserve a chromo, and an extra nice one too. I have told the mailing-clerk to send you one. Let us have other reports from the little folks who have bees of their own. **Ernest.**

FACTS FROM ACTUAL EXPERIENCE AND OBSERVATION.

FROM OUR YOUNG FRIEND CHARLIE.

FRIEND ROOT:—Bees wintered well here, and are now in fine condition. They began gathering pollen March 18 and 19, but have gathered very little since, on account of so changeable weather. We have been feeding some. We had one weak swarm run out of honey one night, and the next morning I brought a part of them to life by warming them, but they did no good.

One evening, a short time ago, we moved a swarm two miles. When we fixed them up the bees were spread about, all through the hive. After we had got them home, sawed the entrance large, and in other ways badly jarring them, we looked into the hive, and were surprised at finding them drawn up into winter quarters, and any amount of thumping and pounding failed to make a single bee move.

Now, do bees generally act so decent while being moved? Last winter we moved some swarms but one-fourth of a mile, that became badly demoralized. We wintered two large swarms this winter, with entrances only 2½ by ⅓ inches; and in spite of so little ventilation they came through, losing scarcely any bees. In some hives, upper ventilation right above the cluster was used all winter, without causing any harm.

We have over 40 varieties of honey-plants near us. The mallow, which blooms as late as November, is the latest. It has short leaves, flowers variegated with white and pink, and it produces snow-white pollen. Ironweed produces white pollen, and the bees get covered with a white dust while working on it. Bees do not work on red clover and goldenrod here, as the blossoms of the latter get so destroyed by the old-fashioned potato-bug, or, may be, because the bees do not notice it. Hawthorn, four kinds of smartweed, and several species of autumn flowers resembling sunflowers, are good honey-plants.

It is queer indeed how bees find out honey so quickly. One day last spring the cellar-doors were left open. Some honey was down cellar. I was near by at work, and I did not see a bee anywhere about. Presently I left, but was back shortly after. The cellar was just swarming with bees. I closed the doors, and the bees came out of the cracks. This started robbing. I find that bees are more apt to fight on damp cloudy days than on bright warm ones. On autumn mornings they often all mix up in a big fight, but quiet down when it gets warm enough for all to go to work in the fields.

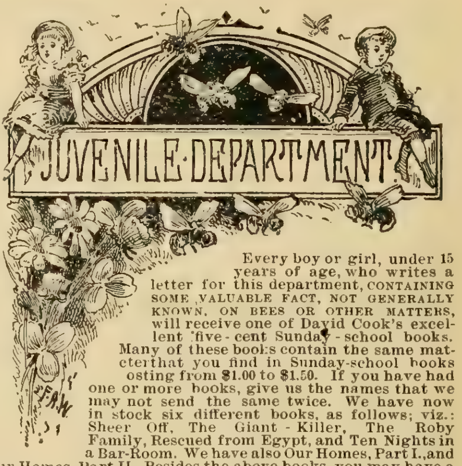
Fall before last a great many bee-trees were cut down. One was said to contain 200 lbs. of honey. Last fall, not one was cut down.

The morning of June 27, 1885, was a bright one; but at 10 A. M. it began raining, and rained until 3 o'clock. The clouds then broke away, and the bees went to work. One swarm I noticed was unusually quiet. On looking into it, it was found quiet inside also. Presently they began rushing about, and so they were shut up. Then they began swarming. When they clustered the limb was sawed off and taken to the new hive. While doing so a small bunch dropped off. When the swarm was hived we looked and saw that the bunch that had dropped off had risen up and clustered on the tree close to where the swarm had clustered. Part of them were brushed off and carried to the hive, and the rest were shaken off. These then struck directly for the new hive, which was not over a rod distant. Now, this, although a first swarm, came out at 4 P. M., two hours past the usual swarming time. It may be likely that they prepared to swarm in the morning, and as the rain stopped them they had to wait until it was over, which made them quite late.

One sunny day last winter, when it stood only 23° in the shade, I placed the thermometer on the south side of a hive. It soon ran up to 83°, so it was 60° warmer on the south side of the hive than in the shade. **Charlie L. Greenfield**, age 14.

Somerville, Butler Co., Ohio, Apr. 5, 1886.

Very good, friend Charlie. Your thermometer was placed in the sun, and that is why it recorded such a difference in temperature. In taking such observations, the sun should never be allowed to shine directly on the thermometer, especially on the bulb.


JUVENILE·DEPARTMENT.
F.R.W.

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matcterthat you find in Sunday-school books osting from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of nformation.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

WHAT TO DO, AND HOW TO BE HAPPY; A SEQUEL FOR THE WEE FOLKS.

CLATTER, clatter, whackity bang, tick, tack, click, clack — "What's all that racket this time of the day?" exclaimed I. The heavy machinery had all stopped for the night, and I was sitting at my desk, with pen in hand, prepared to write something *real nice* for the little folks. Racky tack, tick tack, cracky cracky whack! This only I received in response to my question. "What in the world *is* all that racket?" I thought. "I wonder"—racky tack, ticky tack, ker squash—"oh! I know; it is one of the clerks who has been working late hours to fill orders, and in his blundering haste has tumbled a pile of goods all over himself and on to the floor. How clumsy some folks are!"

There, there! in my uncharitableness I have just lost a *splendid* thought, and I can't recall—racky tack, tick tack. Half disappointed at the loss of a brilliant thought that wouldn't come back, and half bewildered at such an unseasonable din, I was on the point of saying, "Ma, make the children stop that incessant noise; I can't write, nor hear myself think," when I remembered that I was married now, and that I wasn't over home, nor was Blue Eyes, Caddie, or Huber, anywhere around to bother me as in days just gone by. "Ma, make them stop" has become almost a part of my nature, and it crops out once in a while now. Racky tack, tick tack. "Oh dear me! what shall I do? In this noise I can't think of any thing, and 'Barney' is calling for the 'Introduction to the juveniles.'" The noise seemed to grow louder. Half curious, half out of patience, I arose from my seat and sallied forth into the compositors' room, then through the long hall, and at last halted in the clerks' office. All was quiet, save that "racky tack." Following the sound of the noise I passed into the paper-room and bookbindery. I then sauntered into the sample-room. What do you think I saw? There were Hiram, Franky, Minnie—yes, and Ella too. Sitting at a table, each one had a mallet, and something to do. Sections, heaps of 'em, were they driving up square. Tick tack, click, clack, *that* was the noise everywhere. "What to do and how to be happy" seemed to be fully exemplified upon their bright happy faces, and I didn't feel a bit mad when I saw how rapidly and how nicely, too, they were folding together those one-piece sections we manufacture. It seems these children had seen what pretty work it was, and they had teased their mother, who has charge of the room, to let them do it too. As she was somewhat behind in her work, she consented to let them try; and when I saw them I was fully convinced that they were the best automatic section-formers I ever saw. Little 7-year-old Ella was keeping up with the older ones. How fast do you think she could fold them? We kept track, and found that she could fold a whole box of 500 sections in just about two hours. From the looks of her bright face I don't think she ever had any play that she enjoyed better. The question of "what to do and how to be happy" seemed to be fully solved for her. Now, I was wondering if other little folks couldn't do it too. I imagine that your papa, if he is a bee-keeper, has lots of sections he wants folded, and perhaps he has got a bright boy or girl who wants a job, and a chance to earn money. We pay 3 cts. per 100 for putting up sections in our factory. At this rate little Ella earned 15 cts. for the two hours she worked, or at the rate of 7½ cts. per hour. I think that is doing pretty well for a 7-year-old chick. Of course, she would get tired if she folded more than one box at a time.

Now, I do not know of any thing you can do at present that will help your father more for the coming flow of honey. I should like to have reports from the little folks, telling how fast you can put together sections. If you will do real well I will send you any thing you may choose from the 10-cent counter. ERNEST.

A PETRIFIED WASP'S-NEST.

My father has a petrified wasp's nest. It is about as big around as my fist. The cells are mostly filled up, and some of them are raised, while others are slightly broken. It looks a good deal like a honey-comb. He has also some with fern leaves on them. They are very pretty. CARRIE MELICK, age 10.

Waverly, Neb., March 30, 1886.

Now, Carrie, are you sure it is a petrified wasp's-nest? From your description I am inclined to think it is the work of some insects like the coral insect. Something in regard to this has already appeared in our back volumes.

AN OLD FOGY.

I read all the little letters and your foot-notes. Ma says that honey and croton oil (equal parts mixed), given every two hours in teaspoonful doses is the best remedy for the dysentery that she ever saw. She also has a dropsy recipe which takes a quart of honey to make it. We have a neighbor who claims to be an old bee-keeper. He says if he had a mind he could make all the neighbors' bees come to him and stay. Do you think such a thing possible? If so, is he not an enemy to bee-keepers near by, if he is not honest? TOMMY BROWN.

Searcy, White Co., Ark., Mar. 1, 1886.

Don't be alarmed, friend Tommy; that neighbor you mention has probably got a few old-fogy ideas in his head, one of which is that he could call all his neighbors' bees to himself. He might induce them to call on him for a short time by setting out syrup, or starting a cider-mill, but the bees, after they had feasted themselves at his expense, and had pestered him all they could, would return home without so much as saying, "Thank you." Nothing so much annoys me as to hear one of these old seers boast of the big things *he* can do. ERNEST.

THE NAUGHTY SABBATH-BREAKERS.

I wrote just one year ago, and told you about pa's bees commencing to carry in pollen on Sunday, the 1st of Feb. Now, these Sabbath-breakers commenced at work this year on buds of water-elm, on Sunday, the 31st day of January; so with all of our example and teaching we have failed to teach them better. LIZZIE L. MULLIN, age 10.

Oakland, Colorado Co., Texas, Feb. 17, 1886.

Thank you, friend Lizzie. It is true, the bees never respect the Sabbath; but working on Sunday isn't the worst thing they do. I have sometimes thought that Sunday was their favorite day for stealing and getting into mischief generally, and on holidays, when folks are not at home. Several times on coming home from church I have found the little scamps on a "regular tear," as the boys say. ERNEST.

HOW TO EXTRACT, AS TOLD BY JACOB.

When we extract we take the smoker and smoke the bees well, and then take the combs out of the hive. We next cut the cappings off with a knife, and then put it in the extractor. We then turn the handle around. But if larvæ are in the combs we have to turn very slowly. We turn until the honey is all out, and then take the combs out of the extractor, putting them in the hive again. We take the cappings off the combs, and then when we get enough we try them up and then take the wax down to the drug-store and sell it. We got 65 cts. for one pound nine ounces. JACOB BATTERSBY, age 11.

Port Dover, Ontario, Canada.

Your description is very good, and shows that you have had some actual experience in the apiary, aside from what can be learned in books. ERNEST.

HONEY AND ALUM FOR COLDS; FROM A LITTLE GIRL WHO LIVES AMONG THE INDIANS.

Honey, with alum grated into it, is good for the croup. I am an orphan girl. I live with Mrs. Thomas, and take care of little Ollie. We keep bees, and take GLEANINGS. Mrs. Thomas and I are going to attend to the bees this summer. Drones were flying the first day of April. Mrs. Thomas has given away a good deal of honey. We make candy of it too. LILLIE MILLS, age 11.

Stringtown, Choctaw Nation, Ind. Ter.

I presume you have Indians all around you, and that you do not find them so terrible as little folks are apt to imagine. By the way, if I am correct, the Choctaw Indians are the most civilized of any race of Indians in America. Missionaries are making every effort to get them started in agriculture. Now, can't you do a little missionary work, and get the red faces interested in bees? You can show them how delicious a thing is honey, and perhaps induce some of those who are not particularly fond of agriculture to start in bee culture. Unless I miss my guess, an Indian and his papoose have a sweet tooth somewhere. May we hear from you again? ERNEST.

A PRAYER FOR CHILDREN.

Inclosed please find a beautiful prayer, clipped from *Zion's Watchman.* My little brother and I have learned it by heart, and repeat it every night before we go to bed. Will you please print it in GLEANINGS, so that many other children may see and learn it too?

Father, now the day is past,
On thy child this blessing cast:
Near my pillow, hand in hand,
Keep thy guardian angel-band;
And throughout the darkling night
Bless me with a cheerful light;
Let me rise at morn again,
Free from every thought of pain;
Pressing through life's thorny way,
Keep me, Father, day by day!

Papa put out some rye flour for the bees to-day, and they worked on it quite well. My mamma does not think that honey is of any use for a cough or cold, where persons are used to eating it every day.

EVA GREGG, age 7.

Galilee, Wayne Co., Pa., April 2, 1886.

HONEY NOT GOOD FOR COLDS; MILK A REMEDY FOR "HONEY-ACHE."

In answer to your question, my mamma says she has been doctoring babies for 32 years, and never found honey of much use for croup. Honey is astringent, which is contrary for either colds or croup, and mamma says people should be very careful in giving it to babies. She was at a neighbor's house with her baby. A young woman fed it a little honey, and the babe soon began to scream and cramp. As soon as the girl told mamma what she had fed it, mamma poured cream down the babe, and it soon got better. Mamma thinks cream will always help in such cases. She always uses maple syrup or simple syrup for colds. We all love honey very much, but mamma won't allow us to give Huber any. He is my little brother, five months old. He is very smart, but cries much with the earache. Can you tell us of any thing in the next GLEANINGS that would cure it? Papa has lost only one swarm of bees, but it is very cold here yet. We have just commenced making sugar. Mamma sugared off 81 lbs. last Saturday. TESSIE A. TAYLOR, age 10.

Shelby, Oceana Co., Mich., Mar. 29, 1886.

Dear me! when *juvenile* doctors disagree, who shall decide? Some say honey is good for croup, and some say it isn't. I am almost inclined to believe you are pretty nearly right.—Giving children nice rich milk or cream is undoubtedly good for little folks when they have the honey-ache (you know what that is, boys), from an overdose of honey. You remember father Langstroth once told of his little grandchild coming to him and complaining, after eating too much new honey, "O grandpa! I've got 'stomyache'" (honey-ache). His good grandpa at once prescribed milk. This the child took and was better. I often can not eat very much honey myself, without old Dame Nature making a "howl;" but when I take milk with it I get along very well. The old Bible expression, "A land flowing with milk and honey," seems to imply that the two should go together. So, little folks, when you take honey to cure a cold, and then get the "stomyache"—"out of the frying-pan into the fire," drink some good rich milk.—In regard to the earache, I suppose I have suffered from it as much as most people—having had it day and night for a week at a time. Many of the remedies that are commonly prescribed are worse than useless. Never tinker with your ears. Soaking the feet in hot water, and then taking a good sweat, being careful not to take cold, is the only thing which I have found that will give relief. I have instructed the clerks to send you a chromo, as I think you deserve one. ERNEST.

A NIGHT RAMPAGE—BOYS STEALING A SWARM.

Last summer some boys thought they would have some honey (campers, I suppose), so they came about 11 o'clock one night and were carrying off a hive. Just as they were carrying it to lift over the fence, Cousin Will, who was coming home from seeing his "best girl," heard them. They dropped the hive over the fence, upside down. The cover flew off, and the frames fell out, one of which they grabbed and ran over the road, and Will after them. They ran about 40 rods and dropped the frame of honey, and dodged out to the side of the road, and slipped by him before he knew it, as it was very dark, and then he came back and told papa, and he got up and went down with the lantern, but the bees were all out, and he could do nothing with them, and had to leave them thus in the road until morning, then he took out the frames and put them in a new hive and set them back on their stand, and they are now doing well. SKIP.

Covert, Seneca Co., N. Y.

Thank you for your account of the stealing, and the results. Although you say your father could do nothing with the bees, you do not mention whether the bees filled the air in the dark, or only a few flew out, and the rest remained in the hive in the condition it was. If the bees swarmed out in the dark, I should like to know whether they all got back to the hive before daylight. It would be an interesting point to know whether scattered bees can in the dark cluster in one spot, guided only by the hum of their comrades. Can we hear from you again? ERNEST.

DO QUEENS LAY, 3 DAYS FROM THE TIME OF HATCHING?

Pa put up one nucleus in 1885, and got 125 lbs. of surplus honey that season; that was the best yield he ever got from one nucleus. Perhaps you would like to know how he makes a nucleus. He first puts in one rack of honey; second, a rack of sealed brood; third, a rack of fresh eggs; fourth, a rack of sealed brood, so as to leave the rack of eggs in the center, from which he expects to rear his queens; then he lays a piece of ducking over them, and lets it hang down the empty side to keep them warm. Ten queens is the most he ever got from one rack of eggs. He transferred 3 of them before they were hatched, into other nuclei. When they hatched, and were three days old, he found, in each nucleus, a space as large as his hand, with fresh eggs. That was the earliest he ever had them lay, or ever heard of. If you ever heard of any thing like that, let me know.

I have been to school about four years. I like to go to school very much, and I like to see a nice dish of honey on the table.

MARY JANE WALTER, age 11.

Wahoo, Saunders Co., Nebraska, Mar. 12, 1885.

I think Mary Jane, there must be some mistake somewhere, either in your record or in your father's experiments. Did he not by mistake get the old queens from the hive and take them along to form a nucleus? I have done the same thing several times. I do not think it possible for a queen to commence to lay when only three days old, and they must have commenced a little sooner than that, even, or they would not have had a patch of eggs as large as you state.

THE RESURRECTION PLANT.

One day I gave papa ten cents (he was going to Lincoln), and asked him to buy me a hoop or else a flower. He noticed a man at a street corner, who was standing by a little stand with a curious plant to sell. He called it "Mexican moss." Papa bought one for me. It was all dried up, and seemed to have no life in it. I put some water into a teacup, and then put in the plant. It began to slowly open, and soon the cup was too small for it. I then put it in a saucer, and it continued to open, growing green at the same time, until it was nearly as large as the saucer. In about three days I laid it away, and it dried up the same as before. When dried up it is about as large as a hen's egg, and of a light brown color. Once in about two months I take it out, put it in water for about three days, and then put it away. It has a small bunch of thread-like roots, and, when dry, they form about one third the bulk of the whole.

KATIE MELICK, age 11.

Waverly, Neb., March 30, 1886.

Friend Katie, I have seen these resurrection plants, and have been quite curious in regard to them. Are you sure the plant comes to life again? Will it grow and produce more of its kind, if kept constantly wet? I do not believe it will, but may be I am mistaken. May be somebody else can tell us about it.

HONEY, AND OTHER REMEDIES FOR COLDS AND CROUP.

In answer to your question in GLEANINGS, March 15, in regard to honey as a remedy for colds, ma says it is a good one. Sage, steeped and sweetened with honey, is good, and I guess this is the reason California honey, which is gathered from wild-sage flowers, is better than our basswood. I am sorry that Arthur had the croup, for I have had it several times. Take goose-oil or soft lard, add a few drops of spirits of turpentine; with this, bathe the throat and chest, then apply a hot cloth; this gives immediate relief. I am 12 years old, so I do not have croup any more.

There are a good many bee-keepers around here, and I think we shall stand a better chance this year than last, as we all lost heavily—some all. The bees are coming out well this spring. I think snow is a good thing for wintering. Ours were covered completely. When we took away the snow in March the queens we got of Oliver Foster had brood in all stages.

GEORGE W. REAR.

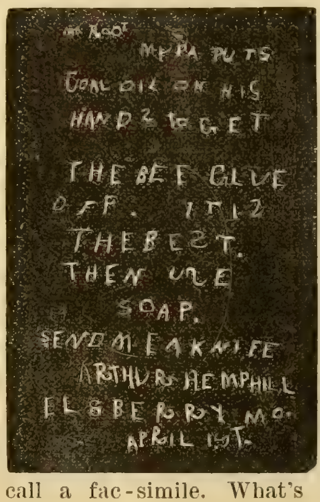
Uxbridge, Ont., Canada.

Thanks, little friend, for the fact in regard to the sage. It is possible that the flavor of the sage in almost all California honey may account for its being better for colds and croup. Mountain-sage honey, from my own experience, does seem to have curative properties that other honey does not have. I should very much like to hear from the other little girls and boys who may have compared sage honey with that from other sources and its effect on colds.—Arthur has now gone home to his parents, but to my knowledge he has not had the croup since he took that "dose of cheese-rinds," and afterward the honey.

You have given us one more fact of interest. You say your bees were completely covered with snow, and that they wintered well. J. B. Mason, in a recent number of GLEANINGS, you remember, thought snow quite detrimental to successful wintering.

ERNEST.

REMOVING PROPOLIS WITH COAL OIL.



~~KOOT~~
MY PA PUTS
COAL OIL ON HIS
HANDS TO GET
THE BEE GLUE
OFF. IT IS
THE BEST.
THEN USE
SOAP.
SEND ME A KNIFE
ARTHUR HEMPHILL
ELSBERRY MO.
APRIL 1ST.

Our little friend Arthur Hemphill is too small to write his letter, so he has printed it, and sent it to us. We were a little afraid if we simply set the letter up in type that it would lose a great part of its originality, so our engraver has here reproduced it just exactly as Arthur sent it to us. This is what big folks call a fac-simile. What's a fac-simile? Well, ask your mamma, if you don't understand from the above.

ERNEST.

A LITTLE GIRL WHOSE FATHER HAS THREE APIARIES.

My papa has kept bees for eight years. He runs two other yards, one six the other eight miles from our home apiary, where we (that is, mamma and I) work the bees. We gather all our honey on carts, with springs under them, so there is no jar. Pa makes all of our fixtures by water-power, improved for the express purpose. He has invented a bee-feeder, made from a square oyster-can. He thinks it beats them all for cheapness and adaptability. It looks to me like a cigar-box with a sliding cover.

There is, about a mile from us, a spring said to be the largest in Minnesota. We live on this spring branch, in which are speckled trout. Pa caught one weighing 3 lbs. 15 oz.

GRACE KLECKLER, age 13.

Spring Valley, Minn., Jan. 12, 1886.

Very good, Grace; but we should be very glad of a longer letter. Perhaps a great many things that your father does would be interesting to the mass of our readers.

HUBER MILLER.

I have the smartest baby-brother. He is 14 months old. He could walk when he was but 9½ months old; and what do you think his name is? It beats your baby's name a long way. His name is Huber Miller. You know that Doctor Miller is a great bee-man too. My little brother Josie is nearly 6 years old. He was paralyzed when he was 5 years old. He is quite lame in his left leg. He stays in the shop with pa nearly all the time. He makes little boxes, and calls them his bee-hives. We have three white rabbits. Josie and Huber like to play with them. Pa's bees wintered nicely for him. He has 25 colonies. Some bee-keepers lost all their bees this winter. **NANNIE C. SHAUER.**

North River, Virginia, April 2, 1886.

REPORTS ENCOURAGING.

AN A B C SCHOLAR RECEIVES 97 LBS. OF HONEY PER COLONY.

I AM an A B C scholar, and have kept bees for a year now. Last year I worked for extracted honey, and took 97 lbs. per hive. My bees are right in the heart of the city, and I think this was doing pretty well. Not one colony offered to swarm, and I did not increase at all. I wintered them in Simplicity hives, packed with chaff, as you directed in the A B C. They came through the winter very strong—not one colony lost, and all are doing very well now.

SHALL WE DIVIDE OR NOT DIVIDE, IN ORDER TO GET THE MOST HONEY?

This year I decided to work for comb honey, and I should like to ask you if as much *comb* honey can be obtained if we keep the old stock in very strong condition, and give plenty of room for surplus, as if you divide at the beginning of clover yield and have two colonies at work. I have looked this up in all my works on bee culture, and can find no satisfactory answer to it. **PERCY T. WALDEN.**

37 Putnam Ave., Brooklyn, N. Y., Apr. 23, 1886.

Friend W., the question you propound is an unsettled one. See what is said in regard to it on page 271.

WINTERED 108 COLONIES OUT OF 110.

I am much pleased with the new departure in the interests of horticulture. I like this mixing of subjects extremely well, and would not like to see GLEANINGS conducted on any other principles.

I put 110 colonies in cellar, 4 of which I expected to carry out dead in winter. I have 108 "alive and kicking" at this date, very quiet, and apparently in good condition.

We live on the forty-fifth parallel. Last year was a poor honey-season in this part—nothing but basswood honey, although white clover and buckwheat were abundant. We took about 2500 lbs. from 58 colonies, spring count; increased to 110. Blacks gave better returns with me last season than either Italians or Holy Lands; in fact, the latter did nothing but swarm, as I did not get a pound of honey from them, and had to feed them for winter. I am trying some young queens that are crossed; and if they don't do better, off come their heads.

Almonte, Can. **J. K. DARLING.**

TOBACCO COLUMN.

I, THE undersigned, have quit the use of tobacco in all its forms; and if I am entitled to a smoker, please send the same. If I ever commence again, I will pay you for the smoker. **J. L. BAKER.**

Henton, Shelby Co., Ill., Feb. 26, 1883.

I received my smoker, and was well pleased with it; and if I ever use the weed again I will pay you for it. I am very much obliged to you. GLEANINGS comes all right. We put 8 colonies of blacks in the bee-house last fall, and took 8 out. Two were robbed, leaving 6 strong colonies.

Barber's Mills, Ind. **ISAAC THROSSIKILL.**

A LITTLE GIRL'S INTEREST IN HER BROTHER.

Brother John has quit the use of tobacco, and desires me to say that if you see fit to send him a smoker he will pay for it if he ever uses tobacco again. **LAURA M. HOBBS, age 12.**

Middleport, Meigs Co., O., Mar. 22, 1886.

Well done, friend Laura. You now see how much a little girl may do if she sets about it. After your brother sees your letter here in print I am sure he will not want to break the promise he has given here before so many people. You see the promise is down in white and black, and it has been printed more than five thousand times, and perhaps ten thousand people will see it, and he will surely stick to it before the eyes of all this great company. Don't you think he will?

WILL QUIT THIS TIME.

My husband has left off tobacco, and I thank God. If you send him a smoker, I should be glad. He left off two months ago, and I guess he is in earnest this time. I thought so when I married him; but he says he will own up and pay for the smoker if he fails again. He is too proud to own his weakness. I think you will get him this time; because if he did use it he would pay up.

MRS. D. E. CLICKNER.

South Allen, Hillsdale Co., Mich., Mar. 6, 1886.

I agree with you, my good friend, for I think we have got him this time. If he has consented to let you write this letter, to be published, that consent and that promise will brace him up to hold out.

I saw your offer in GLEANINGS, to any one who has quit the use of tobacco. Well, I have induced a man who is living with me, and who has used it for 30 years, to stop. He says that he will never use it again if you will send the smoker. I will stand good for him; and if he resumes the use of tobacco I will pay for the smoker. There is another who has quit chewing. We had a prayer-meeting the last night of the old year, and prayed and sang until the new year, and he set out to quit then, and has gained ten pounds. **M. SIMPSON.**

Gatesville, Coryell Co., Texas, Feb. 27, 1886.

Well done, friend S. And, by the way, I think one of the most efficient modes of working against this tobacco evil is to get your friends to quit, and also get their consent to let you have the promise printed in GLEANINGS. If you stand good for that friend, we shall be safe, and the Master will stand good for us all while we are trying to further the cause of purity and temperance.

OUR HOMES.

Thou shalt not covet thy neighbor's wife, nor his manservant, nor his maidservant, nor his ox, nor his ass, nor any thing that is thy neighbor's.—Ex. 20 : 17.

WHILE I write this beautiful 10th day of May, our country is stirred by fierce conflicts between labor and capital. With the beautiful weather we have had, and the bright prospects for bountiful crops, it would seem as if not only all nature but all mankind should be at peace with themselves and at peace with God. Why must we have such troubles, and this, too, in a land of liberty, and a land of churches and Christian people? Some will tell us it is caused by one thing and some another. But is it not true, that the one great prime cause is the breaking of this last of the commandments? We are continually wanting something that belongs to our neighbors. I have been told that the Chicago troubles were mainly caused by a class of people that would take all the property in the world away from the rich and give it to the poor; that is, that they would have it divided up and equalized. I have not been told whether gamblers and inebriates and highway robbers were to have an equal share with the rest or not; but I suppose they would, of course, come in. The only class that could think of wanting such an arrangement brought about would, of course, be those who expect to gain, and who are dissatisfied with the place in life that God has seen fit to give them. Now, it is not alone the gambler and inebriate and the highwayman who want what belongs to their neighbors, but I am afraid, my friends, the disposition lurks to a greater or less extent in the hearts of all of us. While it is true, that there are multitudes of good people who do not want a copper but what justly belongs to them, and who would not find any happiness in the possession of something for which they had given no fair equivalent, yet for all that these same good people sometimes get mistaken notions about the rights of property. Sometimes one who is employed by a large firm or company gets into a way of fault-finding, something like this:

"Now, just look here; I have been at work for Mr. A, B, and C, and have just been coining money for them, and yet I get only a paltry so much a month. If it were not for me, their business would half go down."

Or, perhaps, A, B, and C may get into a way of speaking of some of the best of their help as follows:

"Just look at that man. What was he when we first took him into our employ? He was not earning, all together, fifty cents a day. We took him in hand and taught him business principles. To make him feel pleasant and contented we advanced his wages time and again, and are now really paying him more than he is worth. But do you suppose he ever thinks of it, or ever feels a spark of gratitude? Not he."

Now, friends, the attitude of the employers is a bad one, and the spirit of the employe is a bad one. On both sides there has been the sin of covetousness, and the only real, true, rational remedy for this sin is the spirit of Christ—a spirit that prompts us to make it our business in life to do good, and to help the world along; the spirit of suffering long and being kind, even to the unthankful; a spirit of not being puffed up; of not thinking of what is our own or our just dues; of not being too hasty to think evil; the spirit that will enable us to bear and believe and hope and endure. I have told you before how this disposition grows on us—a disposition to complain and find fault when not getting our just dues. Do you not see that it is in direct opposition to a spirit of thankfulness? When Miss Ophelia asked Eva where she had rather live, up north or down south, she replied at once, "Down south, by all means." When asked for an explanation she replied, "Because there are so many more to love down south," meaning the negroes. Sometimes we complain because our station in life compels us to wait on so many different people. Reader, are you a waiter? If you are, instead of complaining of your lot, rejoice because you have so many more to love. Do you not think such a spirit would do much to quell the dissatisfaction that has sown the seeds for these present strikes that are stopping our railway trains, stopping the freights in many of our large cities, stopping mills, coal-mines, and factories, because of the disagreement between employer and employes—disagreement where there ought to be thankfulness and warm friendship on both sides? While so many are seeking work, it seems to me the man who furnishes work ought to be regarded as a public benefactor; and while so many are seeking to get faithful helpers, ought not those who pay them their wages week by week and month by month, to feel grateful because they have efficient and faithful helpers? I suspect that all these troubles attendant upon strikes have started in the first place from a habit of gossip in our homes. Perhaps at the family meals we have been discussing imagined wrongs when we ought to have given thanks for undeserved blessings. Before eating our food we ought to give God thanks; and then, to carry out the spirit of asking a blessing, we ought to be, by word and action, giving God thanks while we sit at the table; and thanks to God come pretty near, as you know, to thanks to our fellow-men. "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me." If you have said "thank you" and *felt* "thank you," to those who have helped you during the day, you have in one sense said "thank you" and felt "thank you" to Christ the Savior. How little chance there would be for strikes and quarrels in our business relations, if this spirit of thankfulness were cultivated and developed!

There is a want of faith between employer and employe—a want of confidence. Each seems to recognize the other as an enemy. Each seems to recognize the other as greedy and avaricious, and working only for the "almighty dollar," and not for love to his fellow-man. There is too much of greed and too much of a want of conscience, I allow; but let us not be discouraged when we see this. Let us look for the better qualities that many times overbalance the evil. Good traits and evil traits may often be found in the same individual; or, if you choose, we often find men who seem to have a lack of principle in one direction, and in the next they show themselves liberal and generous. I don't know why it is, and I have just been thinking perhaps you may see the same disposition in myself. If you do, please think gently when you see my imperfections, and remember my other good qualities in a way that will help to overbalance them. Education, many times, has much to do with it. We have been accustomed to do tricky things, and don't stop to realize how wrong they are; and at the same time we may in general be generous and liberal. Let me relate a little circumstance.

I have just purchased a span of horses that cost me toward $400. Good judges declared I had one of the best teams in the county. For several weeks they seemed perfect, without a flaw or fault. Finally one of them showed unmistakable symptoms of what we took to be blind staggers. A good friend of mine, and one whom I have always considered to be a very honest man, advised me to keep still about it and never mention that such a thing ever happened. This attack happened luckily (so he said) out in the fields, where nobody noticed it.

"Just keep still about it; take him into the city of Cleveland; and as nobody can see *a thing* amiss in his looks, you can sell him for all he cost and more too."

I protested.

"Why, said he, he was put on to you, and you are an innocent party. Just sell him the same way you got him, and may be he won't show it again for months, and perhaps not at all."

I quietly replied, that, if he were sold, the one who bought him should know as much about his failings as I did.

"Why, my friend, you can never get through the world that way. You will be swindled when you buy, and swindled when you sell; for if you tell what you know of this horse, you might not be able to get a fourth of his value."

I replied that I had got through the world so far, and never lacked friends or money, and that I should take the chances of being honest before God in all my transactions, no matter if it did cost me $150 or more.

I mentioned the subject a few evenings ago at one of our teachers' meetings, when an old farmer present said that the fashion of buying and selling stock or produce in the way I had illustrated was the besetting sin that was the ruin of our churches, many of them, as well as of their members, and that strict honesty in deal was more needed than almost any other one thing.

Now, friends, how much do you think such transactions have to do with the want of faith between employer and employes? or the lack of faith among men in each other, because of these crooked things? I am happy to tell you that a veterinary physician told us a few days afterward that my horse hadn't had the blind staggers at all. He said that it was caused by a rush of blood to the head; perhaps by overfeeding, or more likely because the new collar he had been wearing didn't fit right, and obstructed the circulation. He said if the horse had had the blind staggers it would show in the animal's eyes; whereas his eyes looked perfectly bright, and he was as full of life the minute after the transaction as he ever was. Furthermore, he never showed any such symptoms except when he was pulling a load. Now, then, the friend whom I have quoted above was an old farmer and an old horse-trader. A great part of his life had been spent buying horses of the farmers for city markets. I may not have given the conversation exactly as it occurred, but the substance of it was the same. A few days afterward I wanted to buy some manure of this same friend. As he kept a good many hens and only one horse, a large part of the manure was from the poultry. I told him that, under these circumstances, I would give him 25 cts. more for it than what I had paid other people. He said he didn't want any more; he was quite willing to sell it at the regular price, if I would take the whole. I examined it, and told him it was well worth 25 cts. more, but I could not make consent to take it. So you see he is not close in deal, and does not lack in liberality. These things are, as you see, a good deal the force of habit. No doubt Satan takes advantage of these habits and ways; and no doubt he is constantly seeking opportunities to whisper covetous thoughts and feelings to us. I have seen this little evil weed of covetousness take root, and grow. I have seen it increase from month to month, and from year to year. When the poor tempted sinner gives way to it, and indulges in uncharitable thoughts of his friends and neighbors, he soon gets to talking to others about his wrongs and indignities; and if the love of Christ does not come in to pull him out of the abyss into which he has fallen he may not bring up until he reaches the penitentiary or insane-asylum.

A good deal of this spirit of covetousness comes from mistaken notions that people have about what others *ought* to do. A pretty wise old lawyer once said to me, "People *ought* to do whatever they agree to do. When a man does that, he is a pretty good man."

Perhaps this code might not be safe for a Christian, but I think all of us would be better Christians if we kept the matter in mind. A man once brought me half a barrel of maple syrup. Now, I had learned by experience to be careful about buying. I told him I would take it if it was just to my notion, and the price suited. I was careful not to say if it were *good*, because so many had declared that their maple syrup was strictly first class, when I didn't pronounce it so at all. After testing it I told him he must have been careless about cleansing the barrel, for that it had a musty taste that would very much injure the sale of it with my customers. He declared there was no musty taste about it at all. I pleasantly told him we would have to call it a difference of opinion, but that I didn't care to buy it.

At this he became abusive. He said that was just the way we town folks took advantage of farmers. We got them to bring their produce, then pretended there was some fault with it, in order to get it for half its value. Now, I hadn't *agreed* to buy the man's maple syrup at all. I had advertised to buy maple *sugar*, but hadn't advertised to buy *syrup*, and he was abusive because I exercised my privilege of buying or not buying, as I chose.

Suppose I want a man to work for me. He says he will work for two dollars a day, but he doesn't care to go to work at a less price. Now, perhaps I am acquainted with him, and do not consider him worth over *one* dollar a day; but he has a perfect right to refuse to work for less than two dollars, if he chooses. I have no right to feel hard toward him, nor to complain. His strength and skill are his own, and he has a perfect right to do what he pleases with them — that is, within the bounds of reason. He has as good a right to ask two dollars a day for his labor as the man who raised strawberries in February has a right to ask two dollars a quart for them. If we do not want to pay that price for strawberries, we are at perfect liberty to decline, or let them remain in the greenhouse where they were grown. Just the same with labor. Although strawberries could not be raised at the above prices and sold here in Medina, I should have considerable respect for the man who was so much of an expert with plants and fruits that he could raise a crop of berries in the greenhouse every time without fail.

I admire skill in any department, and I do love to see men and women who can command big wages. When I am in need of such skill, it is a great pleasure for me to pay big wages. So far, well and good. But suppose some old hand of mine should make up his mind that he couldn't work for me any longer unless I should pay him considerably more than I had been paying. Ought I to feel hard toward him? Not at all. Nor has he any right to feel hard toward me if I pleasantly say I can not afford to give what he thinks he ought to have. Neither of us should feel hard if, in discussing the matter we can not agree. I may think he magnifies his value, and he may think I am mistaken in thinking I can get along without him, or supply his place easily. We often have different opinions about these things; but if we are striving after righteousness, we certainly ought not to feel unkindly toward each other because of these differences in opinion. Now let us go a step further, and suppose this hand should wait until the busiest season of the year—the time, in fact, when it would be most difficult for me to supply his place on short notice, and then demand an increase of wages before he would consent to keep on with his work. My friends, I think he has a right to do this if he chooses, although it seems to me it is a rather unkind way of doing, especially if relations have been of a friendly nature. If there has, however, been no agreement in regard to giving notice before leaving, I can not see that we should have any right to censure very much. My old lawyer friend would say, "What was the agreement?" If no agreement at all on either side in regard to stopping without notice, he would say we had no right to find fault. Old and tried hands are often hired by the year, and sometimes an agreement is made that either party shall give a notice of 30 or 60 days if they wish to change relationship. A Christian man, or even a gentleman, would usually tell his employer that he would stay by him until he got over his crowd, or until he could look up a substitute. Those who are working for me have almost invariably been willing, or preferred to do this. Perhaps it is because those who do the work for me are, as a rule, personal friends, and I am glad to say those who are not given to the sin of covetousness. They do not want to put me to trouble and expense, even though they may think I have not paid them as much as I might have done. A Christian man is commanded to "do good to those who hate" him. Now, if we are to consider the interests of our *enemies*, and try to do them good, how much more are we under obligations to consider the interests of those who have been our *friends*, and strive to do *them* good!

Now, when we consider a case where the entire hands of an establishment, or at least a great part of them, enter into a combination to demand more pay, we come right into the strike business. Is it right? Well, I think it is right and proper for laboring people, or working people of a factory, to agree together in this way, if they choose so to do. But if they are Christians I think they will give their employer sufficient notice beforehand, so that he may make arrangements to avoid loss. Everybody has a right to work or not, as he chooses. He has a right, too, to sell his skill and strength to the highest bidder, providing he does it in a gentlemanly way—in a way consistent with "thou shalt love thy neighbor as thyself." Well, now, very likely I look at the matter from one side; but it does not seem to me as if it were right for those who give up their places, to discourage in any way or in any way try to prevent new hands from taking the places they vacated. When we step over into this matter, telling others what they shall or shall not do with their labor, it seems to me we are getting on dangerous ground. I have sometimes replied to the friends who had their hives and honey stolen, that there was a fault away back somewhere, and that the best remedy would be to encourage Sunday-schools and churches in places where such things happen.

It seems to me that such is the case where this matter of boycotting and strikes is rampant. There surely is a lack of godliness, a lack of Bibles, and a lack of Christian spirit. I can hardly think such a state of affairs can come about where the proprietors are good Christian men—where they have been working for the interests and for the salvation of the souls of those they employ. It seems to me that it indicates a bad state of affairs, and that this bad state must have existed some time back, or matters would never have come to such a crisis. We have proof of this from the fact that the law is almost powerless. These combinations are formed, and this work of intimidating any who attempt supplying the place of the strikers goes on in broad open daylight, and in a land that we fondly call a land of liberty. In our neighboring town of Akron, strikers have even intimidated the proprietors of boarding-houses, threatening them if they entertained those who propose to take the places of the strikers. Jesus said, "Blessed are the meek, for they shall inherit the earth." Strikers seem to think that the right and proper way to inherit the earth is to do it by scaring the people with bowie-knives and revolvers; and these things go on, and nothing much is done about it. Well, I am not sure that much can be done about it, unless we begin at the root of the matter.

When a man tells me that he can not get along with his wife because she has got to be so ugly, I usually inquire if there is not a *pair* of them that have got to be "ugly." And where a manufacturer has strikes among those in his employ, it seems to me that it indicates not only a bad spirit among his hands, but a bad spirit in the employer. A short time ago I went with my daughter Maud to visit one of her college mates. This college mate had just begun housekeeping, and the young couple were a model husband and wife. After a while the husband incidentally remarked that they had had their wages cut down. I asked him how the employers managed to do it. His reply was, "They did not manage at all." They had been working all the week just as usual, and supposed they were to receive their usual wages. Saturday night, instead of receiving the usual amount, they found that about 20 per cent had been kept back. Some of the most intelligent of the men went back and asked if it would be out of place to ask for an explanation, telling the paymaster that, if business was dull, and the cut-down was a necessity, they were not disposed to be unreasonable, but felt as though something ought to be given by way of explanation. The paymaster replied in a harsh, overbearing way, "If you don't like the pay we give you, you know what to do." These same proprietors have had terrible troubles within the past few weeks; and if I should treat my hands in that way, I should be sure that terrible troubles would come here. Why, I wouldn't hurt their feelings, as I know such a thing must hurt, for all the money the world could furnish. I have sometimes had to cut down wages; but I have never done it, I believe, without talking the matter over, and arranging for it in a neighborly and friendly way a week or more *before* the reduction was to commence. Sometimes my hands go away because I can not pay them more, but almost always with a friendly hand-shaking, and kind words on both sides. Dear reader, is it not worth something to so live that your relations with your fellow-men may be like this? and is there any name given under heaven whereby we may be saved from these troubles except that of Jesus Christ?

This very matter, by its strong contrast, gives us a wonderful glimpse of the beauty of the character of Christ. He came among men, a man himself, and yet a man that coveted nothing belonging to his friends and neighbors; a man who, although he was intensely human, yet labored and died for others, and never performed even one miracle for himself — no, not even when he hungered and thirsted. Thank God, the spirit of Christ exists in other human hearts, even at this date. Multitudes of earnest, honest Christians are laboring for the good of their fellow-men, scarcely thinking or caring for self; and through such as these, such as are living examples of the Christian spirit, we are to find relief from all these troubles. So long as great multitudes are living for nothing but money or gain, so long shall we have fierce conflicts; but when men can be educated and taught to obey in spirit as well as action the commandment at the head of this, then may we expect "thy kingdom come, thy will be done on earth as it is in heaven."

A FRIEND IN TROUBLE.

AND SAID TROUBLE CONTAINS A VALUABLE FACT FOR THE ENCOURAGEMENT OF BEE-KEEPERS.

I WROTE to ask the editor of the Baltimore Weekly *Sun* if he could tell me how to get rid of honey-bees from our house. He replied that he would advise me to write to A. I. Root, Medina, Ohio, "who is authority on all such subjects." The bees took possession of the side of the house, between the plastering and weather-boarding, and have been there for 15 years and more. Twice we had them removed, with the promise they would not return; but the next season they came with double quantity. A year ago the moths destroyed them; but in May, *three* large swarms came in, and are still in possession. The house is suffering for need of repairs, and I am in great distress, as I can't get any one to go near them, as they seem to be very spiteful. Is there any way to keep them off, or to destroy them? I shall be truly grateful for any thing you can tell me to do. I am a poor woman, with no gentleman to act for me. C. T. FENWICK.

West River, Md., April 10, 1886.

Why, my dear friend, your little story contains something wonderful for the encouragement of bee-keepers. If you can not find some enterprising bee-man to help you out of your trouble, it will be strange. We have for years been working and devising to get some arrangement that would induce bees to take up, of their own accord, with some hive already prepared for them, instead of going to the woods. Now, your house, or, at least, that portion of your house, seems to have, by accident, met the requirements entirely; that is, if, as you say, bees persist in coming to you for a lodging-place. Are you not mistaken in thinking that *three large swarms* came all at once? If so, it is a phenomenon beyond any thing heretofore recorded in this line. If you don't hear from somebody who will help you out of your difficulty within ten days after the issue of this paper, let us know, and I think we can help you. We are very much obliged indeed to the editor of the Baltimore Weekly *Sun* for his good opinion of us.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

SOME weeks ago our good friend Chalon Fowls, of Oberlin, O., wrote us that he had been talking with one of the largest wholesale firms, dealers in fruits and vegetables, in Cleveland, in regard to bogus comb honey, but that he could do nothing with them at all. They just laughed at him when he attempted to convince them that there was no such thing as manufactured comb honey in the markets. In despair he wrote to me, asking me to write to them, as they were personal friends of mine. I did so, and here is their reply:

> We received your bee-journals, and read all the articles you marked on the subject; and until the other side bring forward some proof to substantiate their claims, we shall not admit that there is such a thing as manufactured comb honey.
>
> C. CHANDLER'S SONS.
>
> Cleveland, Ohio, April 19, 1886.

You see, friends, the victory is ours. Through the influence of the bee-journals, and the friends of the honey-bees, these fraudulent statements have been met and refuted; and almost every live intelligent paper has given notice to its readers that the whole thing was a mistake. It is encouraging to find that we are not helpless in such matters; that earnest, persistent, faithful effort will always carry the day, especially in defense of the truth. Another thing encouraging in regard to the matter is, that we have proved that the press at large is not unwilling to refute error when it is rightly managed, with good men's names to back it. The N. Y. Weekly *Witness* held out hard and strong to the adulteration stories; but when I sent them a letter, explaining fully the points they had misapprehended, it was published at once.

NOTES AND QUERIES.

HURRAH FOR THE ALLEY DRONE-TRAP!

YOU will remember I got a lot of drone-traps of you, and I thought it might be of interest to you to know how they work, so here goes. I find the Alley drone-trap a perfect blessing, as you will never have a swarm to abscond, and you need not clip your queens either; and for second swarms, where there are more queens than one you can trap them and pick the nicest one; or if you need a virgin queen for a queenless colony, use the extra ones, or do as you please with them. I say, "Hurrah for Alley's drone-trap!" I would not be without mine for twice what they cost.

Gonzales, Tex., May 3, 1886. M. BROERS.

25 CHICKENS HATCHED OUT OF 26 EGGS.

You had such *good* luck raising chickens this spring, I thought I would tell you of mine. I set 26 eggs, and had 25 chickens. They are all alive, and doing well. MRS. T. H. MILES.

New Richmond, Pa.

ANOTHER USE OF THE CLARK SMOKER.

I got one of your smokers—not for bees, but for bugs. I have tried it with tobacco-stems, on rose-bushes, etc., and it performs beautifully. I have not seen it spoken of as a "terror to evil-doers" in that way, and I thought you might be interested in hearing of its success. W. B. MARSHALL.

Indiana, Pa., May 5, 1886.

A GOOD REPORT FOR AN IMPORTED QUEEN.

You wish to know every one's experience with imported Italian queens. Mine has been good. The imported queen that I got from you a year ago last July is far ahead of any other I have ever had, in every way. Her bees are quieter in winter, and will not swarm till every crevice in their hive is filled up. I have sold off most of my other stocks, and will keep only those raised from my imported queen. THOMAS CHRISTIAN.

Lorraine, Ont., Can.

HOW TO USE THE HEDDON SLATTED HONEY-BOARD ON THE SIMPLICITY HIVE.

White clover is unusually plentiful this spring. I should like to ask how you use the Heddon slatted honey-board on the ordinary Simplicity hive. By answering the above you may oblige others as well as myself. I would not think of keeping bees without the A B C and GLEANINGS.

FRANK A. DURAND.

Esdaile, Wis., April 29, 1886.

[We have never used the Heddon slatted honey-board on any hive, but we have made a good many of them to order, made so as to lie perfectly flat on top of the Simplicity frames. The upper stories are then raised enough to make sufficient space for the honey-board, by tacking strips on the upper hive.]

ADVANTAGES OF EXTRACTING.

Two months ago I shipped to Portland some of the whitest extracted honey I ever saw. It was taken from goldenrod and blue aster, and such good clear honey, free of that strong taste, I never had before. The more I see of extracting, the better I like it, for we can keep colonies so much stronger that we shall get honey, even in a poor season. I am satisfied that we can keep down the swarming fever better by extracting before much honey is sealed over, because it keeps the bees working to fill those empty combs. I have no fear about evaporation; warm weather does that all right; and besides, new honey works much easier. Considerable is said about half-pound boxes. Now, why not just cut the 1⅞ box in two, so as to be only half as large around? Then two will take the place of one, and there will be no confusion, you see. I shall try it if nothing prevents. It is quite inconvenient to have a number of different sizes; but with this there would be no trouble. E. P. CHURCHILL.

Lewiston, Maine.

THE SPRING DELIGHTFUL.

We are having a delightful spring. The fruit-trees in this part of the country are loaded with blossoms; the bees are busily engaged in securing supplies from the open flowers, and building up rapidly for the coming season. Our bees, 20 stands, came through all right, bright and clean, the past winter. I am of the opinion that good honey to winter on has more to do with successful wintering than any thing else. We have the Italian bees in A. I. Root's chaff hives, wintered on the summer stands. I have found out that section combs that were not capped over, the honey being removed, are not suitable to use again. They become tough and hard; last season the honey-flow was short. The bees gathered enough to winter well in this part of the country. J. M. MCREYNOLDS.

Topeka, Ill., April 27, 1886.

A GOOD REPORT FROM THE CONTROLLABLE HIVE.

Friend Root:—I have 18 hives of bees in Mrs. Cotton's Controllable hive, and they keep me busy. It is the best hive I have seen so far. I hived one swarm of bees in a Controllable hive last year, June 5, and have used Mrs. Cotton's new system of bee management, and that swarm left me 204 lbs. of surplus comb honey, and came out all right this spring. WM. HIESTANDS.

Palm Station, Pa., Apr. 27, 1886.

[Friend H., we are very glad indeed to hear this, and I have no doubt but that the Controllable hive, managed according to Mrs. Cotton's instructions, will give excellent results. Neither is there any doubt but that Mrs. C. might do a large and profitable business if she would sell her goods at prices something near the usual price asked for bee-supplies.]

OUR OWN APIARY.

EXPERIMENTS WITH PERFORATED ZINC.

SOME one, whom I do not now remember, wrote us that the perforations in our new zinc were wider than those of the foreign make, and that he thought, in consequence, queens would get through. It is to be remembered, that six or eight months ago Mr. Henry Alley, who has had a large experience in zinc, pronounced the foreign as the best. If, indeed, the perforations in our zinc were wider than those of the foreign make, then our perforated honey-boards might be almost of no value for the purpose of excluding queens from the surplus-department. To test the truth of the matter I have made some careful measurements of the perforations, both in our own and in other makes. The instruments used for the purpose were some I had in college for laying out plats and making other accurate drawings. They are capable of measuring down to the four-hundredth of an inch, and with these I obtained the following results:

The width of the perforations in the foreign zinc was nineteen-hundredths of an inch; the width of the American, with oval holes, sixteen-hundredths; the Jones, eighteen-hundredths; our own, a width between the foreign and the Jones zinc. I verified these results with a steel rule having hundredths of an inch marked off, so that I do not think I am far from the correct measurements. It is to be observed from the foregoing, that the perforations in our zinc, instead of being *wider* are *narrower* by a difference that is very slight. If queens can not get through the foreign zinc, then I do not think they will get through ours; that is, if measurements mean any thing.

Now, laying aside measurements with which we obtained the preceding fractions, let us put the zinc to an infallible test; namely, a trial in the apiary. Queens from different parts of the apiary were seleted at random. Each of these was caged over the zinc in such a manner that the only means of escape back to the bees was through the perforations in the zinc. It was amusing to watch them in their efforts to get through. After repeated twisting and squirming, their attempts were of no avail. Finally the apiarist selected the smallest, poorest queen he could find in an apiary of over 300 colonies. The efforts of this queen likewise proved a failure. The apiarist then picked queens up by the wings, and tried to force them through, but found that he could not do so without injuring them. The thorax of a queen is much larger than most people think; and one is apt to suppose, on looking at zinc, that queens can pass through that easily, when an actual test would prove to the contrary.

If a queen can not get through, can workers filled with honey? To answer this question I instructed the apiarist to get two bread-pan feeders. These he was to fill about half with honey, and to put over each the ordinary cheese cloths. The feeders were then placed under the maples some little distance from the apiary. Over one of the feeders as thus prepared was placed a piece of our perforated zinc, so adjusted that the bees could not get at the honey except by passing through the perforations. Over the other feeder in like manner was placed a piece of American zinc. My reason for testing the latter was to see how they compared in results. Besides, several of the bee-keepers have called for this American zinc, stating that they thought it better than the zinc of larger perforations. Well, what do results say? In a short time the bees were swarming over both feeders. Through our zinc the bees seemed to have no difficulty in passing, and, even gorged with honey, they appeared to get out as easily as they entered. Not so with the American zinc. The bees passed through tolerably well; but on becoming gorged with honey they were caged, and could not get out again. At the time I was there, perhaps half a pint of bees were shut in, and unable to make their escape. They could get perhaps half way through, and a few managed to squeeze out, but I am sure the friends will not find it economy to use it.

The size of the perforations should be such as to admit worker-bees filled with honey to pass freely, but not allow the same privilege to queens. As our dies were made after the foreign zinc, it seems to me we have hit the size pretty nearly.

CARNIOLAN BEES.

During the early part of this spring these bees seemed to be crossed with Italians, as nearly half of the bees were of the latter race. Now that the old Italians in the colony have all died off, leaving none but this new race, the steel-gray color mingled with the jet black stands out clearly. One can hardly form a correct idea unless he views a whole swarm of them at a time. But even yet I think when we come to talk about *pretty* bees the old Italians still take the lead. Aside from color, I have not yet discovered that the Carniolans differ very much from the Italians. If the former should in no way prove superior, the mere matter of color or beauty ought not to warrant us in introducing this new race in our apiaries very largely. The crosses with the yellow bees would not very easily be distinguished from the old-fashioned hybrids—at least, customers would not know the difference, even if *we* did.

NUMBER OF COLONIES UP TO DATE.

In addition to the original 181 colonies, we purchased 41 of friends Shook and Rice. After dividing up a good share of the strong colonies we now have 300 fair stocks. E. R. ROOT.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAY 15, 1886.

There is none other name under heaven given among men, whereby we must be saved.—ACTS 4: 12.

THE CHAPMAN HONEY-PLANT.

FIFTY plants, strong and healthy, are all growing, as reported on page 391. They very much resemble thistles. We have given them good rich ground, between rows of small apple-trees, so they can remain in the same place three years or more. As soon as they are in bloom we will watch them carefully, and probably have engravings made of the plant in bloom.

A COURSE IN ENTOMOLOGY.

At Cornell, a summer course in entomology and general invertebrate zoology will be instituted under the personal supervision of Prof. J. H. Comstock, of whom mention has been made before. Here is a chance for "beeists" and others who may desire instruction in the special anatomy of the bee, as well as of other insects. Further information can be obtained by writing to the professer in charge.

"A YEAR AMONG THE BEES."

THIS is the title of the book just out, written by our old friend Dr. C. C. Miller. It arrived too late for a review of it to appear in this issue. If it is all as good as the introduction, which we have read, it surely will be a treat to peruse its pages. A glance at the contents is sufficient evidence to show that no practical bee-keeper can afford to do without it. It is published by T. G. Newman & Son, and can be purchased of them for 75 cts , postpaid, or can be obtained at this office at that price.

AN OLD ALMANAC.

W. LINCH, Maysville, Ky., sends us an old almanac, dated 1839. Among other industries mentioned in it we find a short article on the care and management of bees. The writer of said article discourages the cruel use of brimstone, current at that time. The hive he describes is a plain box, 13 inches square. Across the top of this are slats from which I presume combs are to hang. The boxes just mentioned are to be tiered one above the other, according to the strength of the swarm, and in this way the writer says he has tiered them four high. Tiering up, he claims, will largely prevent second swarms, which he asserts are almost useless. The contents of the article shows that we of to-day are not so original in many things as we think.

BUYING NUCLEI IN THE FALL, TO BUILD UP BY FEEDING, INSTEAD OF BUYING FULL COLONIES IN THE SPRING.

ON page 549 of our issue for Aug. 15, 1885, I wrote an article in regard to building up nuclei by fall feeding. If convenient, it may pay you to turn back and read the above article. A friend wanted six colonies of bees to begin with in the spring. Such colonies as he wanted, we told him would cost him over $100 in April, 1886; but we sold him select tested queens and nuclei for a little over $25.00. He was to buy sugar, and feed them up before cold weather came on. Well, now, although our customer was a comparatively new hand at the business, having only his A B C book, and such instruction as, we briefly gave him, I am glad to be able to note that the six nuclei are now six strong colonies — no loss and no dwindling. The question I asked, when the above-mentioned article was written, was this: Will a pound of bees and a frame of brood and a queen, started, say, in the middle of August, build up so as to make what may be called a fair colony by the middle of November? Our friend's experiment answers it in the affirmative. His address is Thomas Painter, Oberlin, O., should you wish to ask him more about it. Besides the saving in money, he has obtained an experience that is worth more to him, perhaps, than the money saved.

MAKING PERSONAL ORDERS.

MANY of the friends within a hundred miles or so of our place have thought it a great advantage to come here and make their orders personally. It is true you can look at the goods and at the same time obtain matters of information. There is this about it, however: There is always a chance for mistake in taking down orders verbally. Then the controversy arises, "Who was at fault?" Only last week there was some misunderstanding in an order made verbally, and the result was that 1500 odd-sized frames were made wrong. If we have it all in black and white, as is in the majority of cases where orders are made by letter, it is a very easy matter to trace the source of the mistake. Another thing, it generally takes one of our valuable clerks sometimes half a day to wait on a personal customer, when the whole transaction by letter could be disposed of in 15 or 20 minutes at the outside. Again, this personal customer, in many cases, wants his goods right away, when the probabilities are that we have written orders with cash inclosed that have been waiting patiently their time. Now, friends, as far as convenient will you not make your orders by letter? and as far as the inspecting of goods is concerned, you are most of you familiar with the wares we handle. If you do not know present prices of goods, write us with a list of what you want, and we will send you an estimate by return mail, with discounts, if any. You see, friends, it is a saving all around. It saves you car fare, it saves our time, and, consequently, is the greatest good to the greatest number by having more orders filled. Not only this, it avoids mistakes and controversies. It is fairness to friends at a distance; and will you not try to accommodate us? Of course, friends who live within 5 or 10 miles of us can save freight by driving out after the goods, and the foregoing does not apply to them.

The above was written by Ernest, to which I add, we do not, by any means, intend to be rough on our visitors. Sometimes we have genial friends who come to see us, who request permission to look around, without bothering anybody, and we are always glad to see such—the more the merrier; but if you come during the busy month just before swarming time, please don't feel hard if you have to wait on yourself a good deal. In regard to personal orders, I would suggest that the party making the order be afterward required to read the copy, and then say whether it is correct.

REDUCTION ON BEES AND QUEENS.

Owing to the very favorable season, we are pleased to state that we are now ready to fill orders for any thing in the line of bees, queens, or full colonies, at June prices.

BUSINESS AT THIS DATE, MAY 15.

Although our trade has been as large as it ever was before, we are filling orders, with but few exceptions, quite promptly. Strikes have made us trouble in some lines of goods by the stoppage of freight. But few if any of our orders are more than a week old.

THE WESTERN PLOWMAN AND TOBACCO.

We are pleased to note that the editor of the *Western Plowman*, of Moline, Ill., has fallen into line, and is going to send his paper free one year, to tobacco-users who give up the weed in every form for a period of one year. The name is to be printed, attached to the pledge given in the first number of the *Plowman;* and if the signer "goes back" on his pledge he is to pay 50 cts. for the paper — that is all. The bright feature of this is, that the man who promises to quit, publishes said promise in black and white; and who would go back on his signed contract, published in a paper, for a paltry 50 cts.?

THE BEE-KEEPER'S LAWN-MOWER.

Those lawn-mowers have exceeded our expectations. Around home the lawn had been neglected, and the grass had grown to a height of six and seven inches, and was of a heavy growth. But one of those little mowers cut it all down. In a few places the grass was eight and nine inches high, but the mower leveled down even this; however, when grass reaches this height it requires considerable strength to run the machine, and to make the job complete the ground must be gone over again. Our boys have experimented with several different mowers, but never found one that, for ease of running and good work, would anywhere near compare with this. For prices see advertising columns of this issue.

ORDERS FOR ODD-SIZED GOODS, CONSIDERED ONCE MORE.

We always try hard to do "all we agree to do," and the regular-sized goods in our price list we at least indirectly, if not directly, agree to keep on hand in readiness for shipment. Now with the crowd on our factory, it is, without question, our duty to fill orders for regular goods first; and orders for odd-sized stuff, that we do not advertise, and do not agree to furnish, must come afterward. This is but justice in several ways. We can generally fill half a dozen orders for regular goods, where the machinery is all fixed, where we could fill only one or two that required delays for a new arrangement, to make something special to order. In making your orders, please keep this in mind: The things we advertise can usually go at once, or pretty nearly so; but things that have to be made specially for you must await their turn.

REASONS FOR BEING THANKFUL.

The weather thus far has been most beautiful. At the present writing, May 12, we have had no frost to do any damage, since the early part of April. During April a spell of beautiful warm dry weather, just exactly as farmers wanted it to get ahead with their work, continued so long that some, who might be in a little hurry to complain, just began to talk about the drought. Since then, beautiful summer showers have blessed us just about as fast as they were wanted; and any one who works outdoors (or indoors either, for that matter) and has not felt a spark of gratitude welling up from his heart, must be, it seems to me, a little hard to please.

KIND WORDS FROM OUR CUSTOMERS.

THE PRINTING AND BINDING OF THE A B C.

I must compliment you on the present edition of your A B C of Bee Culture. The fine grade of ink used, together with the quality of the paper, "bring out" the engravings and type with a wonderful clearness and distinctness. It is a sample of work that would be a credit to any printing and book-binding establishment. J. B. Whitlock.

Eufaula, Ala., May 4, 1886.

NONE MORE WELCOME THAN GLEANINGS.

I wish to say something in favor of Gleanings. I take several journals of another kind, but none are more welcome to my table than bright and happy Gleanings, with "What to Do and How to Be Happy while Doing It." I was very tired when I took your issue for Jan. 15th, but after reading it half an hour I felt like a new man. Wishing you unbounded success I remain resp'y yours,

Brockway, Mich. W. H. Gowan, M. D.

GLEANINGS "A LAMP TO THE FEET OF THE YOUNG."

My children inquire of me every day, "When are you going to get Gleanings? We can't do without it; do get it again." In fact, I have felt as if I were getting a little lonesome too, for we all have a desire to see it first among our other papers. It is a safe journal for a family to read, and a lamp to the feet of young and old. Would that the children would read Gleanings, and practice its teachings, in place of reading novels and attending dances and such like. O. P. Wright.

Millerstown, Perry Co., Pa., Apr. 26, 1886.

GOOD GOODS AT A LOW PRICE.

My goods, which were shipped March 5, have arrived. They were delayed a long time on account of the great strike. One of the ends of the barrel was out except one small piece. Nothing had lost out. The railroad men must have been very careful not to lose any thing out of the barrel. Those culled sections are much better than I expected. They are good enough for me. Every thing you sent is cheap. Those ten-cent screw-drivers are the cheapest goods I ever saw. You must buy cheap, or you could not sell so cheap; but how can manufacturers make a living at such low figures?

G. W. Beard.

Milano, Milam Co., Tex., April 29, 1886.

TROUBLE TEACHES US HOW TO SYMPATHIZE WITH EACH OTHER.

I received my second lot of goods all right. I think those ½-lb. tumblers are "boss." Every article was found just as ordered. I am well pleased with every thing. I made quite a lot of hives and sections this spring for myself and neighbors. Bees are doing very well at present. They commenced on fruit-blossom this morning. Friend R., will you send me a lot of sample copies of Gleanings, especially of Mar. 15? You ask why that date. This is a Christianlike neighborhood, and a great many of them are keeping bees, and I thought to present some of them with a copy, and perhaps by the operation I might receive some subscriptions for the same. The one particular feature about that issue is in Our Homes. I have lost considerable stock this winter, and from causes for which I can not account, nor can any one else whom I have seen. I have worried over it considerably; but when I read Our Homes, I took to quite a different notion, and have quit worrying and troubling myself about things which I can not help. I hear some of my neighbors are losing in the same way, and perhaps those numbers will help them. It has helped me wonderfully. S. B. Miller.

Amish, Iowa, Apr. 23, 1886.

WHAT OUR OLD FRIEND W. H. SHIRLEY THINKS OF US.

It is a keen pleasure to deal with you, and I wish there were a great many more like you.
Millgrove, Mich., Mar. 30. W. H. SHIRLEY.

PERFECT SATISFACTION.

The goods I ordered of you have given perfect satisfaction, and I have concluded that when we need any thing in your line to send to you for it.
Pattonville, Texas. J. M. CROCKETT.

I believe that all bee-men claim "kin," and, besides, I have gotten it in my head that you are a real good Methodist, and that we are brothers.
P. H. MARBURY.
Hearn, Clark Co., Ark., April 9, 1886.

I am well pleased with GLEANINGS, especially the Home Papers, and its high moral tone. As for the mix, "variety is the spice of life."
DANIEL E. ROBBINS.
Payson, Adams Co., Ill., Dec. 28, 1885.

I received the goods all right, and was very much pleased with them. I think that the A B C book is just splendid, as it is gotten up in such nice style. Your $7.00 saw-mandrel is a beauty. The freight on goods was reasonable. H. H. FISH.
Spencer, Iowa.

PUTTING THINGS UP SO NICELY.

The goods have come to hand all right. You make me feel glad when I see your efforts to please by putting things up so nicely, and discounting whenever your margin will bear it, even in the smallest things. GEORGE BOON.
Thorp's Spring, Hood Co., Tex., May 2, 1886.

THE ADVANTAGE OF THE HUMBUG AND SWINDLE DEPARTMENT.

The maple syrup was received a few days ago. We are well pleased with it. Your exposure of the blueberry-plant fraud has saved me considerable money, as I had sent for a price list, and had intended to send for some plants. S. M. MOHLER.
Covington, Miami Co., O., Apr. 13, 1886.

THAT IMPORTED QUEEN.

The imported queen is here and in good condition; out of the ½ lb. of bees that accompanied her, only about 25 were dead, although they were three days on the way. In less than two hours after they were hived, the queen commenced to lay. Thanks for your careful packing. THOS. & BENJ. YOUNG.
LaSalle, Ill., Apr. 26, 1886.

SEEK YE FIRST THE KINGDOM OF GOD, ETC.

The knowledge you impart in bee culture is good, but it is secondary to that other good quality you display in your writing in bee culture, in preaching the gospel. I ascribe your exquisite flavor of apples and honey not altogether to fresh air, but in a great measure to the truth of the Spirit. See Gal. 5:22. May the God of peace sanctify you wholly, and preserve you until the coming of Christ. With Christ in the heart the world is already a paradise.
East Camp, N. Y., Dec. 19, 1885. PHILIP WECK.

THAT A B C BOOK.

I am just in receipt of your beautiful book, and can only say that my astonishment surpasses any thing I could express, and I can only say that you not only have my warmest thanks, but you may rest assured that, if I can do any thing in the matter at all I shall look to you as the source from which I shall look for all my gettings. I shall read it up carefully, and report. H. W. NEAL.
Wellsville, York Co., Pa.

HOW A BEGINNER SUCCEEDS AS PER INSTRUCTIONS IN THE A B C OF BEE CULTURE.

I have been a student of yours through your A B C book. I purchased one of Rev. Edwin Dudder, and, at the same time, one stand of Italian bees, two years ago this month. I have transferred, divided, and united weak swarms, hatched queens in the lamp-nursery, and introduced them to queenless swarms successfully. Your book has enabled me to do this work, and it has been a great pleasure to me, as well as a source of profit. I wish to express my thanks for the pains you have taken to make bee culture a success for those having no experience. I use one style of hive—Langstroth improved, making them myself, and buying the broad and narrow frames, section boxes, and foundation, etc., of King & Aspinwall. As I look over your book and study it I have a growing desire to speak to you through the pen. C. M. HOWELL.
Andover, N. J., March 9, 1885.

ITALIAN AND SYRIAN QUEENS,
Before June 15, tested, $3.00 each; untested, $1.00 each. Later, tested, $2.00 each; untested, single queen, $1.00; six for $5.00; twelve or more, 75 cts. each. Untested queens warranted purely mated.
6tfdb I. R. GOOD, Nappanee, Elkhart Co., Ind.

SECTIONS, $4.25 PER M.
7-12db **S. Y. ORR, Morning Sun, Iowa.**

THE CANADIAN BEE JOURNAL.
WEEKLY, $1.00 PER YEAR.
JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.
The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

SURE TO SEND FOR MY NEW
PRICE LIST FOR 1886,
Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb
A. B. HOWE, Council Bluffs, Ia.

THE
Apicultural Establishment
OF
F. J. DOKOUPIL,
In Vigaun, Upper Carniola,
Austria, Europe,
Send QUEENS postpaid. Safe arrival and purity of breed guaranteed.
Price each in German Reichsmark.

	Apr.	May.	Jun.	Jul.	Aug	Sep	Oct
Carniolan Queens, Native,	8	7	6	5	5	4	4
Italian Queens, Native,	9	9	8	7	7	6	6
Cyprian or Syrian Queens, Native,	20	20	20	20	18	18	18
Cyprian or Syrian Queens, bred in Carniola,	12	12	11	11	10	10	10

579d1

Italian Bees. I am compelled to reduce my stock of bees, and will sell full colonies and nuclei VERY CHEAP. *Satisfaction guaranteed.* **E. A. GASTMAN,** Decatur, Ill. 911db

ROYAL ✲ GLUE.
Mends Everything.
This is the best cement we have ever tried. Almost any article mended with it will break anywhere else before the place mended. It holds honey labels on tin, etc. Ten cents per bottle; ten bottles, 90c; 100 bottles, $8.00.
A. I. ROOT, Medina, O.

ITALIAN BEES IN IOWA.

60 c. to $1.00 per lb. Queens, 30 c. to $2 50. Order from new circular, sent free. 6tfdb

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

PURE ITALIAN QUEENS.

Single untested, $1.00; 6 for $4.00. Tested, single, $1.50; 6 for $7.50. Selected tested, single, $2.50.

HENRY STECKLER, SR.,

10d **P. O. Box 99. New Iberia, La.**

UNTESTED Italian queens, ready May 25, $1.00 each; 6 for $5.00. Tested, $2.00; after June 20, $1.50. Bees, per lb., $1.50; after June 15, $1 25; full colonies in one-story S. hive, $8.00. 10d

F. S. McCLELLAND, Box 379, New Brighton, Beaver Co., Pa.

JOB LOT OF WIRE CLOTH

AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1½ CTS. PER SQUARE FT.

SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED.

This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and cages for shipping bees; making sieves for sifting seeds, etc.

Inches Wide.	No. of Rolls.	Number of Square Feet contained in each Roll Respectively.
26	71	22 rolls of 217, 37 of 216, 1 of 195, 2 of 215, 1 of 210 s. f.
28	11	5 rolls of 233, and 2 of 234, s. f.
34	7	3 rolls of 281 s. f.
38	37	26 rolls of 316, 2 of 317, 1 each of 632, and 285 s. f.
42	1	1 roll of 245 s. f.
44	2	1 roll of 366, 1 of 348 s. f.
48	2	2 rolls of 400 s. f.

FIRST QUALITY WIRE CLOTH AT 1¾ CTS. PER SQUARE FT.

The following is first quality, and is worth 1¾ cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1¾ cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

Inches Wide.	
22	1 roll 143 s. f.
24	42 rolls of 200 sq. ft. each.
26	56 rolls of 216 sq. ft. each; 1 each of 199, 195, 201, 200, 227, 204 sq. ft.
28	72 rolls of 233, 11 of 224, 8 of 222, sq. ft.; 1 each of 257, 219, sq. ft.
30	36 rolls of 250 sq. ft.; 1 each of 235, 275, 240, 125, 237 square ft.
32	13 of 266, 7 of 256, 2 of 253 sq. ft.; 1 each of 250, 275 sq. ft.
34	30 rolls of 283 sq. ft. each.
36	22 rolls of 300 sq. ft. each; 1 each of 288, 279, and 285 square ft.
38	1 roll each of 300 and 316 sq. ft.
40	1 roll of 233 square feet.
42	1 roll of 350 square feet.
46	1 roll of 192 square feet.

A. I. ROOT, Medina, Ohio.

JOB LOT OF POULTRY-NETTING,

At 1 ct. per sq. foot; 5 per cent off for two or more pieces; 10 per cent off for 10 or more pieces; 1½ cts. per sq. ft. when we have to cut it. Besides this job lot we keep in stock the regular 4-foot poultry-netting, in rolls of 150 lineal feet at same price as above. These figures give the number of sq. feet for each roll; and by dividing by the number of feet wide you can determine the length of each piece.

In. wide.	
60	1 piece each of 170 sq. ft.
72	1 " " " 66, 72, 72, 150, and 186 sq. ft.

A. I. ROOT, MEDINA, OHIO.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—To exchange pure bred Langshans fowls or eggs for apiarian supplies. 10d
WM. NICOL, Gurnee, Lake Co., Ill.

WANTED.—To exchange a 14-inch saw mandrel for comb fdn. or other supplies.
10d BRUCE HOBBS, Danville, Knox Co., Ohio.

WANTED.—To exchange Italian bees, brood, and queens, for fdn., beeswax, type-writer, or any thing having a standard market value. 6tfdb
THOMAS HORN, Box 691, Sherburne, Chen. Co., N. Y.

WANTED.—To sell or exchange, farm, 180 acres, good buildings, good sandy soil; also latest improved Steam Thrashing-machine. Either or both at a bargain. Address J. A. OSBUN & SON,
7tfdb Spring Bluff, Adams Co., Wis.

WANTED.—To sell cheap for cash, or will exchange for bees, Root's chaff hives, the D. A. Jones chaff hives, made up or in the flat, wide frames, brood-frames, dovetailed sections, cases, etc. J. M. KINZIE,
10tfdb Rochester, Oakland Co., Mich.

WANTED.—To sell or exchange a farm, 160 acres; good buildings, good soil, good title. All under fence. For sale at a fair price. Address
10d W. B. BROWN, Spirit Lake, Dickinson Co., Ia.

WANTED.—To exchange Italian bees for a bicycle, from fifty to fifty-six inch. 10d
W. E. DARROW, Box 106, O'Fallon, St. Clair Co., Ill.

WANTED.—To exchange pure Italian queens for beeswax at 28c per lb. Queens, select, $3.00; warranted, $1.50. Ship wax by freight to Barrytown, N. Y. CORNELIUS BROS.,
7 12 db LaFayetteville, Dutchess Co., N. Y.

WANTED.—To sell or exchange. 1000 Simplicity frames of comb, $2.25 for 13, packed in a Simplicity body. ARTHUR TODD, 9tfdb
1910 Germantown Avenue, Philadelphia, Pa.

EGGS.—From choice stock, for hatching. Safe arrival guaranteed. Wyandottes, $2 50 for 13; $4.00 for 26. Houdans, $1.50 for 13; $2.00 for 26. Breeding birds and chicks for sale; or I will exchange for bee-supplies I can use. J. EVANS,
9tfdb Box 89, Schaghticoke, N. Y.

WANTED.—Immediately. 1000 lbs. good beeswax, in exchange for foundation. Wax worked for a share by the pound. Work guaranteed No. 1. Samples free. See ad. in another column. 9-10d
O. H. TOWNSEND, Alamo, Kal. Co., Mich.

WANTED.—To exchange for bees, side-hill plow, cost $16.00; Wiard plow harrow, feed-cutter, circular saw. ARTHUR TODD, 9tfdb
1910 Germantown Avenue, Philadelphia, Pa.

WANTED.—To exchange or sell. *Eggs for hatching*, from 3 varieties of high-class fowls, selected stock, costing from $12 to $20 per pair. Brown Leghorns, Silver-Spangled Hamburgs, and Plymouth Rocks. Eggs, per setting of 13, $2.00. Fowls for sale. Address A. H. DUFF,
8tfdb Creighton, Guernsey Co., Ohio.

WANTED.—Persons in need of stationery to send 28c, 35c, or 40c for 100 envelopes or note-heads, neatly printed to order. Address
10 HERBERT BRICKER, Slate Lick, Pa.

WANTED immediately, 20 untested queens in exchange for beautiful white basswood one-piece sections, at $4.25 per 1000. A. D. D. WOOD,
10tfdb Rives Junction, Jackson Co., Mich.

WANTED.—To sell, after June 1st, 50 3-frame L. size nucleus colonies of hybrid bees, with queens, for $3.50 each, delivered at Plattsmouth, Neb., or I will exchange for young stock, cattle or horses, or apiarian supplies.
10d J. M. YOUNG, Rock Bluff, Cass Co., Neb.

WANTED.—To exchange 20,000 strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale, 75 cts. per 100; $4.00 per 1000, for bees, foundation, or improved poultry.
10tfdb W. J. HESSER, Plattsmouth, Neb.

WANTED.—Ginseng root.—Will pay 75 cents per lb. for the dried root. One ounce to one lb. may be sent by mail to my address. Larger packages may be sent by express to Ransom, Pa., via Pittston, Pa. Address A. P. SHARPS,
10-11d Exeter, Luzerne Co., Pa.

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4-3db

ITALIAN QUEENS AND NUCLEI. Prices in February and March GLEANINGS.
7-10db ANNA M. BROOKS, Sorrento, Fla.

HORN PAYS EXPRESS CHARGES SEE ADVERTISEMENT.

O

The BUYERS' GUIDE is issued March and Sept., each year. ☞ 280 pages, 8½ x 11½ inches, with over 3,500 illustrations — a whole Picture Gallery. GIVES Wholesale Prices *direct to consumers* on all goods for personal or family use. Tells how to order, and gives exact cost of everything you use, eat, drink, wear, or have fun with. These INVALUABLE BOOKS contain information gleaned from the markets of the world. We will mail a copy FREE to any address upon receipt of 10 cts. to defray expense of mailing. Let us hear from you. Respectfully,

MONTGOMERY WARD & CO.
227 & 229 Wabash Avenue, Chicago, Ill.
7-12db

BEES IN IOWA. SEE FOSTER'S ADVERTISEMENT.

Y&.. WYANDOTTE FOWLS, ITALIAN BEES, QUEENS, and SUPPLIES. Send for Price List. **BB**
W. H. OSBORNE, CHARDON, OHIO.
5-11db

DO YOU EAT CANDY?

Send $1.25, and I will express 5 lbs. of Todd's Honey Candies, same as made a sensation at last Pennsylvania State Fair. Remember, every pound sold helps the honey-trade. Special rates for quantities for fairs. Dadant Foundation always in stock at market prices. Bees, Queens, Hives, Smokers. Vol. I of Frank Cheshire's new book mailed free, $2 50.
914db ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.

FOR SALE. — 40 colonies of my improved strain of pure Italian bees in two-story chaff hives, @ $7.00; in single-walled hives, 1½ story @ $6.50; 50 two-story chaff hives, including frames and crates, @ $1.50; 50 single-walled hives, frames and crate, @ .90. Hives have tin roof. 1 honey-ext. for L. frame, $3.00. A wax-ext., $1.00. Must be sold immediately. 7tfdb
GEO. F. WILLIAMS, NEW PHILADELPHIA, O.

VANDERVORT
COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

GOOD NEWS FOR DIXIE!
SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

FOR SALE.—100 colonies of Italian bees, and 200 tested and untested queens.
9-12db E. BURKE, Vincennes, Ind.

RUBBER CEMENT, FOR MENDING RUBBER BOOTS, RUBBER SHOES, and all kinds of rubber goods. An article worth its weight in gold, for the saving of health, annoyance, and trouble. Printed directions for use accompany each bottle. Ten cents per bottle; ten bottles, 85c; 100, $8.00. Not mailable.
A. I. ROOT, MEDINA, OHIO.

ITALIAN QUEENS IN TEXAS.

Reared from Root's best imported. Untested queen, $1.00. Selected, and tested, $2.00, $2 50. Sent by mail. Safe arrival guaranteed. AD. MEYER,
9tfd Sweethome, Lavaca Co., Texas.

---

50 STRONG COLONIES BEES
FOR SALE CHEAP.
F. L. WRIGHT, 9-10d **Plainfield, Mich.**

SEND FOR FREE SAMPLES OF FOUNDATION
TO C. W. PHELPS & CO., TIOGA CENTER, N. Y.

Introducing Queens.

Henry Alley has given, in the May number of the AMERICAN APICULTURIST, several new methods for introducing both fertile and unfertile queens. Sample copies free. Address

AMERICAN APICULTURIST,
9tfdb **Wenham, Mass.**

BOOK FREE. Our catalogue for 1886 contains 45 pages; 31 are devoted to bee-keeping. It treats the different operations clearly and practically. It is just what the beginner needs. Tells how to use the various implements, and embraces the following subjects: Who should Keep Bees? Location of Apiary; Handling Bees; Hives; Implements; Robbing; Italianizing; Swarming; Surplus Honey; Feeding; Diseases and Enemies of Bees; Wintering Bees; Marketing Honey; and a complete list of supplies. This book will be sent free to any address by WATTS BROS.,
9tfdb Murray, Clearfield Co., Pa.

NOTICE THE LOW PRICES ON

Bees, Brood, Queens, Plants, Etc.,

IN MY NEW CIRCULAR. PLEASE WRITE FOR ONE.
C. WECKESSER.
5-10db **Marshallville, Wayne Co., Ohio.**

SEND FOR FREE SAMPLES OF FOUNDATION
TO C. W. PHELPS & CO., TIOGA CENTRE, N. Y.

---

125 STOCKS OF BEES FOR SALE.

Mostly Italians. These bees must be sold, and will be sold cheap. All in Quinby frames. Sold with or without hives. Send for prices of Italians, hybrids, and blacks. Address
WM. E. CLARK,
7-10db Oriskany, Oneida Co., N. Y.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

BEES IN MISSOURI, J. C. STEWART, HOPKINS, MO.

SECTIONS,

$3.50 per M. Dovetailed, all-in-one-piece. Send 2-cent stamp for sample. **E. S. MILLER,**
9-12db **Dryden, Mich.**

In Order to Introduce my Golden Italians

And place them within reach of all, I will send untested queens for 90 cts. each; ½ doz., $5.00; 1 doz., $9.50. Tested queens, $1.75 each. My queens are reared from an imported mother, and in full colonies; 2-frame nuclei, with untested queen, $2.50; 3-frame nuclei, with untested queen, $3 00 (on Simplicity wired frames). Full colonies, Italians, in 8-frame Simplicity hive, $5.50. Full col. hybrids, $4.00. Ref. A. I Root. Address **A. B. JOHNSON,**
9tfdb **Clarkton, Bladen Co., N. C.**

HUMBUG! HUMBUG!

Such men as Muth, Mason, Duvall, Blood, etc., say not. If you are skeptical, try one any way. I guarantee to please you. The Ideal Glass-front veil, only 75c by mail; 16-page circular free.

JOHN C. CAPEHART, St. Albans, W. Va.

ITALIAN BEES AND QUEENS,

From imported queen bought of A. I. Root. Will furnish by June 1. Bees, per pound, 90c., in wire-cloth cages. Untested queens, 90 cents; tested, $2.00. Two-frame nucleus, consisting of one untested queen, two frames containing brood, and all adhering bees, $2.00. Safe arrival guaranteed.
10d *Mrs. A. F. Proper, Portland, Jay Co., Ind.*

PURE ITALIAN QUEENS

Bred from select imported and home-bred mothers, of the best strains. No black bees near. Untested queens, in June, $1.00 each; 6 for $5.00. Tested queens, $2.00 each. For nuclei, etc., send for price list. **D. G. EDMISTON,**
10tfdb ADRIAN, LENAWEE CO., MICH.

I WILL SHIP 4-FRAME NUCLEI, in Simplicity-hive body, well stocked with bees and brood, and guarantee safe arrival. Pure Italian, $4.00; hybrids, $3.50. Ready to ship by next train.
10d H. M. MOYER, Hill Church, Berks Co., Pa.

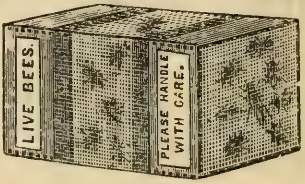
REDUCTION IN PRICES.

We hereby notify our customers that there is a reduction in foundation from the prices quoted in our *March* retail price list. All parties interested will please mail us a card for new prices.

CHAS. DADANT & SON,
10d **Hamilton, Hancock Co., Ill.**

TELEGRAM FROM NORTH-SHADE APIARY.

GOOD


LIVE BEES.
PLEASE HANDLE WITH CARE.

HEALTHY

PURE ITALIAN BEES,

AT THE FOLLOWING REDUCED PRICES:

One pound in package, as above - - - -	$1.25
Five pounds in one package - - - -	6.00

Untested queens, $1.00 each; $10 00 per doz. Tested queen, $2.00; 5 for $9 00. Select tested to breed from, $3.00. Orders filled in rotation. All ready for orders, with 140 colonies to draw from.

STEAM FOUNDATION WORKS.

Comb foundation. Wax worked by the pound. Samples and prices free. *O. H. TOWNSEND,*
10tfdb *Alamo, Kalamazoo Co., Mich.*

1880. 1886.

Headquarters in the North.

Steam factory, fully equipped, running exclusively on *BEE-KEEPERS' SUPPLIES.* White-poplar and basswood one-piece and dovetailed sections. Vandervort thin foundation. Send for free samples and illustrated price list.

10-15db **A. D. D. WOOD,**
Rives Junction, Jackson Co., Mich.

A YEAR AMONG THE BEES.

A New Bee-Book of 114 Pages.

Price 75 cents. Sent postpaid by the Author,
10tfdb **DR. C. C. MILLER, Marengo, Ills.**

ONLY

QUEENS AND BEES.

Untested, in May, $1.15 each; $12 00 per doz.
" " June, $1 00 " $10.00 " "

Tested, $2 50 in May; $2.00 in June and after. Dealers, send for special discounts on dozen lots or more. Safe arrival guaranteed. **W. J. ELLISON,**
10-12d **Stateburg, Sumter Co., S. C.**

ITALIANS

APIARY FOR SALE.

90 COLONIES, in splendid condition; 20 acres land, large new frame house, 70 new hives, 12,000 4¼x4¼ sections, tools, etc. One of the best honey-producing localities in the State of Iowa. Immediate possession. **C. A. SAYRE,**
10tfdb **Sargent, Floyd Co., Iowa.**

QUEENS, 1886. UNTESTED,

From select imported mother. After May 15, $1.00. Wax worked into fdn. for a share, or by the pound. Satisfaction guaranteed. **THOS. & BENJ. YOUNG,**
10-15d LA SALLE, LA SALLE CO., ILL.

RUBBER PRINTING-STAMPS

For bee-men; stamps of all kinds; send for catalogue and sample cuts printed on sections.
10d G. W. BERCAW, Berwick, Ohio.

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CONVENTION NOTICES.

The 5th regular meeting of the Hill Co. Bee-Keepers' Association will be held on the first Tuesday in July, at the apiary of Hon. J. M. McDaniel, Peoria, Tex. At same time and place will be held a bee-keepers' honey-picnic. H. A. GOODRICH, Sec'y.

CIRCULARS RECEIVED.

The following have sent us their price lists:

D. A. Jones Co., Ld., Beeton, Ont., Can., a 16-page price list of bee-supplies in general. We are glad to note the progress of our Canadian friends, as evidenced by their new list.

C. M. Hicks, Fairview, Md., a 4-page list of apiarian supplies.

N. E. Cottrell, Burdick, Ind, an advertising sheet—specialty, Syrio-Italian queens.

J. P. Moore, Morgan, Ky., a 4-page circular, bees and queens.

Tygard Sons, 2119 Jane St., Pittsburgh, Pa., a 4-page list—specialty, square glass honey-jars.

I am being asked my opinion of the new circulars Mrs. Cotton is again sending out quite plentifully. The statements she makes, and the prices she charges for the goods she sends out, would, in my opinion, forbid her being classed with our regular supply-dealers, to say nothing of the strings of complaints against her that have filled our bee-journals for years past.

REDUCTION IN PRICES.

We hereby notify our customers that there is a reduction in foundation from the prices quoted in our *March* retail price list. All parties interested will please mail us a card for new prices.

CHAS. DADANT & SON,
11d **Hamilton, Hancock Co., Ill.**

HORN PAYS EXPRESS CHARGES SEE ADVERTISEMENT.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have fifteen or twenty prolific black queens; 25 cts. each (with cash accompanying the order) takes them.
CHAS. H. SMITH,
P. O. Box 908. Pittsfield, Mass.

FOR SALE.—25 black queens, ready May 20th, until July 10th, at 25 cts. each, or five for $1.00.
ROBERT MITCHELL, Washougal, Clarke Co., W. T.

FOR SALE.—3 black queens at 25 cts. each, and 9 hybrid queens at 40 cts. each; will be ready the first week in June.
S. H. RICKARD,
West Bridgewater, Beaver Co., Pa.

FOR SALE.—Mismated Italian queens for 50 cents each, or ten for $4.00. Twenty ready now.
J. N. COLWICK, Norse, Bosque Co., Texas.

FOR SALE.—2 or 3 hybrids at 25 and 50 cts. each, according to quality. With a pound of their bees, for $1 25 and $1.50.
C. WECKESSER, Marshallville, Ohio.

I have 5 mismated Italian queens that I will mail at 50 cents each, and guarantee safe arrival.
N. A. KNAPP, Rochester, Lorain Co., O.

Two black and three hybrid queens, at 20 and 25 cts. respectively, or the lot to one address for $1.00. Ready any time after the 1st of June.
LUTHER PURDY, Killbuck, Holmes Co., O.

200 Lbs. Box Honey Per Colony

GATHERED BY MOORE'S ITALIANS.

J. V. Caldwell, Cambridge, Ill., says: "As near as I can tell, the first season I had your queens they made me about 200 lbs. of box honey on an average."

G. L. Rinebold, Overton, Pa.: "They are very prolific; and, as honey-gatherers, they can not be excelled."

A. I. Root: "I can not remember of ever having a complaint of one of your queens."

FINE WARRANTED QUEENS A SPECIALTY.

Prices: Single queen, $1.00; per ½ dozen, $5.00. Safe arrival and perfect satisfaction always guaranteed. Send for new circular giving full particulars. 11d J. P. MOORE, MORGAN, PENDLETON CO., KY.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

PURE ✣ ITALIANS ✣ EXCLUSIVELY.

STOP, ✲ READ, ✲ AND ✲ ORDER.

Having determined to devote my time and attention exclusively to the production of pure Italian bees and queens, during the season of 1886, I offer, in order to reduce stock, **50 Choice Colonies of Pure Italians** in 10 Langstroth frames, guaranteed to contain at least 4 full frames of brood and 4 lbs. of bees in new chaff hive, at $10.00 each. I append my prices for the season.

My terms are cash with the order. First orders will be filled first. I will refund money at any time a customer may become dissatisfied with waiting.

My methods: One kind, and the best of that kind. Nothing except tested queens sold at any price. I will send one-year-old queens until stock is exhausted, and then this season's batch. I will commence to send, about May 1st.

1 tested queen	$1 00	1-frame nucleus, tested queen	$2 00
1 pound of bees	1 00	2 " " " "	3 00
1 frame of brood and bees	1 00	3 " " " "	4 00
		4 " " " "	5 00

In lots of 5, five per cent discount; in lots of 10, ten per cent discount. In lots of 10 or more nuclei or pounds of bees, I will pay express charges for the first 1000 miles. Now remember, I guarantee safe arrival and absolute satisfaction in all cases. Sample of live workers free by mail. Capacity, 25 queens per day after May 1st.

THOMAS HORN,
BOX 691, SHERBURNE, CHENANGO CO., N. Y.

6tfdb

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave , Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

ITALIAN BEES IN IOWA.

60 c. to $1.00 per lb. Queens, 30 c. to $2 50. Order from new circular, sent free. 6tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

1880. 1886.

Headquarters in the North.

Steam factory, fully equipped, running exclusively on *BEE-KEEPERS' SUPPLIES.* White-poplar and basswood one-piece and dovetailed sections. Vandervort thin foundation. Send for free samples and illustrated price list.
10-15db **A. D. D. WOOD,**
Rives Junction, Jackson Co., Mich.

APIARY FOR SALE.

90 **COLONIES**, in splendid condition; 20 acres land, large new frame house, 70 new hives, 12,000 4¼x4¼ sections, tools, etc. One of the best honey-producing localities in the State of Iowa. Immediate possession. **C. A. SAYRE,**
10tfdb **Sargent, Floyd Co., Iowa.**

QUEENS, 1886, UNTESTED,

From select imported mother. After May 15, $1.00. Wax worked into fdn. for a share, or by the pound. Satisfaction guaranteed. **THOS. & BENJ. YOUNG.**
10-15db LA SALLE, LA SALLE CO., ILL.

ITALIAN AND SYRIAN QUEENS,

Before June 15, tested, $3.00 each; untested, $1.00 each. Later, tested, $2.00 each; untested, single queen, $1.00; six for $5.00; twelve or more, 75 cts. each. Untested queens warranted purely mated.
6tfdb I. R. GOOD, Nappanee, Elkhart Co., Ind.

SECTIONS, $4.25 PER M.

7-12db **S. Y. ORR, Morning Sun, Iowa.**

1000 LBS. OF BEES FOR SALE. See GEDYE's advertisement. 8-12db

Batchelder's Drone and Queen Trap

Is the only one made that does not hinder the bees in their work. Send 85 cents for sample. Send for circular, and see what A. I. Root says about it.
10tfdb **J. A. BATCHELDER, Keene, N. H.**

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 1tfd
*S. F. Newman, Norwalk, Huron Co., O. 1tfd
*Wm. Ballantine, Mansfield, Rich. Co., O. 1tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 23tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala. 1tfd
*S. C. Perry, Portland, Ionia Co., Mich. 23tfd
*E. Kretchmer, Coburg, Mont. Co., Iowa. 23tfd
D. McKenzie, Camp Parapet, Jeff. Parish, La. 1tfd
Ira D. Alderman, Taylor's Bridge, Samp. Co., N.C. 1tfd
*Jos. Byrne, Ward's Creek, East Baton Rouge
23tfd Par., La.
J. W. Winder, Carrollton, Jeff. Par.,
New Orleans, La. 3tfd
*E. Burke, Vincennes, Knox Co., Ind. 3-1
Richard H. Bailey, Ausable Forks, Essex Co., N. Y. 5-15
S. M. Darrah, Chenoa, McLean Co., Ill. 7-17d
S. H. Hutchinson & Son, Claremont, Surry Co.,
7-17d Va.
*N. E. Cottrell, Burdick, Porter Co., Ind. 7-17d
Peter Brickey, Lawrenceburg, And. Co., Ky. 9tfd
C. C. Vaughn, Columbia, Tenn. 9tfd
*J. W. Keeran, S. E. cor. Mason and Moulton St.,
Bloomington, Ill. 9tfd
D. A. McCord, Oxford, Butler Co., O. 9-19d
H. J. Hancock, Siloam Springs, Benton Co., Ark. 9tfd
F. L. Thompson, Quniey, Adams Co., Ill. 11d
*F. S. McClelland, New Brighton, Pa.

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.
P. L. Viallon, Bayou Goula, Iberville Par., La. 1tfd
C. W. Costellow, Waterboro, York Co., Me. 1-23
Kennedy & Leahy, Higginsville, Laf. Co., Mo. 23tfd
E. Kretchmer, Coburg, Montgomery Co., Ia. 23tfd
S. D. Buell, Union City, Branch Co., Mich. 5-7-9
C. P. Bish, Petrolia, Butler Co., Pa.

SOUTHERN HEADQUARTERS

FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address
5tfd **J. P. H. BROWN, Augusta, Ga.**

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4-3db

One BUYERS' GUIDE is issued March and Sept., each year. ☞ 280 pages, $8\frac{1}{2}$ x $11\frac{1}{2}$ inches, with over 3,500 illustrations — a whole Picture Gallery. GIVES Wholesale Prices *direct to consumers* on all goods for personal or family use. Tells how to order, and gives exact cost of everything you use, eat, drink, wear, or have fun with. These INVALUABLE BOOKS contain information gleaned from the markets of the world. We will mail a copy FREE to any address upon receipt of 10 cts. to defray expense of mailing. Let us hear from you. Respectfully,

MONTGOMERY WARD & CO.
227 & 229 Wabash Avenue, Chicago, Ill.
7-12db

BEE-HIVES,

One-Piece Sections, Section Cases, Frames, &c.,
OF SUPERIOR WORKMANSHIP, FROM
SMITH & GOODELL,
Manufacturers of and Dealers in
APIARIAN SUPPLIES,
ROCK FALLS, WHITESIDE CO., ILL.
3tfd *Send for Price List.*

BEES IN IOWA. SEE FOSTER'S ADVERTISEMENT.

DO YOU EAT CANDY?

Send $1.25, and I will express 5 lbs. of Todd's Honey Candies, same as made a sensation at last Pennsylvania State Fair. Remember, every pound sold helps the honey-trade. Special rates for quantities for fairs. Dadant Foundation always in stock at market prices. Bees, Queens, Hives, Smokers. Vol. 1 of Frank Cheshire's new book mailed free, $2 50.
914db **ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.**

FOR SALE. — 40 colonies of my improved strain of pure Italian bees in two-story chaff hives, @ $7.00; in single-walled hives, $1\frac{1}{2}$ story @ $6.50; 50 two-story chaff hives, including frames and crates, @ $1.50; 50 single-walled hives, frames and crate, @ .90. Hives have tin roof. 1 honey-ext. for L. frame, $3.00. A wax-ext., $1.00. Must be sold immediately. 7tfdb
GEO. F. WILLIAMS, NEW PHILADELPHIA, O.

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

GOOD NEWS FOR DIXIE!

SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

FOR SALE. — 100 colonies of Italian bees, and 200 tested and untested queens.
9-12db E. BURKE, Vincennes, Ind.

ITALIAN QUEENS IN TEXAS.

Reared from Root's best imported. Untested queen, $1.00. Selected, and tested, $2.00, $2 50. Sent by mail. Safe arrival guaranteed. AD. MEYER,
911-13d Sweethome, Lavaca Co., Texas.

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BOOK FREE. Our catalogue for 1886 contains 45 pages; 31 are devoted to bee-keeping. It treats the different operations clearly and practically. It is just what the beginner needs. Tells how to use the various implements, and embraces the following subjects: Who should Keep Bees? Location of Apiary; Handling Bees; Hives; Implements; Robbing; Italianizing; Swarming; Surplus Honey; Feeding; Diseases and Enemies of Bees; Wintering Bees; Marketing Honey; and a complete list of supplies. This book will be sent free to any address by WATTS BROS.,
9tfdb Murray, Clearfield Co., Pa.

NOTICE THE LOW PRICES ON

Bees, Brood, Queens, Plants, Etc.,

IN MY NEW CIRCULAR. PLEASE WRITE FOR ONE.
C. WECKESSER.
5-10db **Marshallville, Wayne Co., Ohio.**

SEND FOR FREE SAMPLES OF **FOUNDATION** TO C. W. PHELPS & CO., TIOGA CENTRE, N. Y.

QUEENS Ready after May 15. Send for price list.
9-11d **J. C. MISHLER, Ligonier, Ind.**

GOOD'S NEW

REVERSIBLE HIVE

all complete, well painted, for $3.00. Sections very low, No. 1, $4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{7}{8}$ or $1\frac{3}{4}$, at $4.00 per 1000.
9-11d **B. J. MILLER & CO., Nappanee, Ind.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

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DUNHAM AND VANDERVORT FOUNDATION

We have a large stock of choice yellow beeswax, and can furnish Dunham comb fdn. for brood comb, cut to any size, for 40c per lb. Extra thin Vandervort foundation, 46c per lb. We guarantee our fdn. to be made from pure beeswax, and not to sag. Will work up wax for 10c per lb., and 20c per lb. for section. **F. W. HOLMES,**
4tfdb Coopersville, Ottawa Co., Mich.

HONEY COLUMN.

CITY MARKETS.

Cleveland.—*Honey.*—The market is very active on best white 1-lb. sections, which sell readily on arrival at 14 cts. Glassed 1-lb., and unglassed 2-lbs., slow at 12c. *Beeswax*, scarce at 25 to 28. Extracted, 7@8. A. C. Kendel,
May 20, 1886. 115 Ontario St., Cleveland, Ohio.

Chicago.—*Honey.*—The demand for honey is very light at present. Prices are easier; in fact, what little demand exists is confined to the best white comb in one-pound sections, at 15@16c. Extracted is held at unchanged figures. *Beeswax*, 25c for prime yellow. R. A. Burnett,
May 20, 1886. 161 S. Water St., Chicago, Ill.

Cincinnati.—*Honey.*—No change whatever in the honey or wax market since our last.
May 20, 1886. C. F. Muth & Son,
S. E. Cor. Freeman and Central Avenues,
Cincinnati, Ohio.

Kansas City.—*Honey.*—Honey of all kinds and grades is very dull indeed, and sales are slow. Prices are unchanged; 1-lb. sections, none in the market; would sell for 16 for choice white; dark, 12@14; 2-lb. sections, white, 11@13; dark, 9@10. Extracted, 3½@6. *Beeswax*, 23c.
May 22, 1886. Clemons, Cloon & Co.,
Cor. 4th & Walnut St's., Kansas City, Mo.

Detroit.—*Honey.*—There is no comb honey in Detroit to quote, and retail dealers are anxiously inquiring how soon they can get new. *Beeswax*, firm at 25 cts. M. H. Hunt,
May 21, 1886. Bell Branch, Mich.

St. Louis.—*Honey.*—Nothing new in our market on honey. *Wax* steady at 25c.
W. T. Anderson & Co.,
May 24, 1886. 104 N. 3d. St., St. Louis, Mo.

Boston.—*Honey.*—No change in price of honey. Sales very light. Blake & Ripley,
May 22, 1886. 57 Chatham St., Boston, Mass.

HAYHURST'S QUEENS.
Reduction in Price.
My warranted queens (untested) will be $1.00 each after *June 15*, instead of after July 1st, as advertised elsewhere.
11d E. M. HAYHURST, Kansas City, Mo.

TEN COLONIES OF ITALIAN BEES IN LANGSTROTH HIVES AT $7 EACH.
Every colony contains five frames of brood.
11-12d **M. ISBELL,** Norwich, N. Y.

THE BEST OFFER YET.
READY NOW.
Three lbs. of bees and Italian queen, $2.75. Bees without queen, per lb., 50c. Five combs of brood, and good colony, at least 3 lbs. and queen, $4.00. 3-frame nuclei, $2.50. **G. W. GATES,**
11d **Bartlett, Shelby Co., Tenn.**

ITALIAN QUEENS,
NUCLEUS SWARMS,
— AND —
FULL COLONIES,
FROM THE BEST STRAINS.
Prices reasonable. Dollar Queens by return mail. Comb Foundation. Send for Circular. 11d
W. H. PROCTOR, Fair Haven, Vt.

SECTIONS, ONLY $2.50 PER 1000, One-piece, Basswood. See Baer's advertisement on last page of cover. 11d

Italian, Holy-Land, and Syrian.

	June	July	Aug.
Italian, from imported mothers,	$1.00	.75	.75
Holy-Land and Syrian, from S. T.	1.00	.75	.75

Tested, double above prices. P. O. notes payable at Chesterton, Ind. Circular free.
11-12d N. E. COTTRELL, Burdick, Porter Co., Ind.

ITALIAN QUEENS FOR 1886.
Untested, 75 cts.; 10 for $6.00; tested, one year old, $1.00; selected, $1.50. Cells built in full colonies from one of A. I. Root's select tested queens.
C. C. KIRKMAN,
11d COXVILLE, PITT CO., N. C.

IDEAL GLASS-FRONT VEIL,
Guaranteed, see May 15th number of Gleanings.
11d JNO. C. CAPEHART, St. Albans, W. Va.

HORN PAYS EXPRESS CHARGES SEE ADVERTISEMENT.

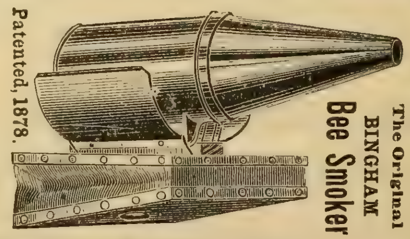
HARD-TIME PRICES IN JUNE.
Two-frame nuclei of Italian bees and brood, with $1.00 queen, $2.00; 3-frame ditto, $2.50; full colony, in A. I. Root's Simplicity hive, $5.00. Each of the above, with tested queen, 50 cts. more. All on wired L. frames. Pure Poland-China pigs, as cheap as they can be afforded. Safe arrival guaranteed. Write for description and prices to
N. A. KNAPP,
11d ROCHESTER, LORAIN CO., OHIO.

CHEAP!
Full colonies in Simplicity hives, and honey enough to winter, for only $4.50. *Will ship last of July.* **DAN WHITE,**
11tfdb NEW LONDON, HURON CO., OHIO.

IF YOU WANT Pure Italian Queens, Bees, Nuclei, Comb Foundation, Sections, &c., Don't fail to send for my price list before purchasing. **C. M. HICKS,**
11d FAIRVIEW, WASH. CO., MD.

For Sale. COLONIES, NUCLEI, and QUEENS, AT LOWEST PRICES.
11-16db GEO. D. RAUDENBUSH, READING, PA.

SAVE *Your* MATCHES



The fire in a Bingham Smoker is always on the grate below the fuel, and above the natural draft and the blast of the bellows, so the fire never goes out, and is always ready to go just when *hybrids* strike and you have no time to fuss with matches. Bingham Smokers last 6 years, and are therefore cheaper to use than any other smokers made, and *always* satisfactory. The Doctor and Conqueror have extra large bellows, and all but Plain and Little Wonder have wide shields to protect the hands from heat. Price of Bingham & Hetherington Uncapping-Knives and Smokers, per mail—

Doctor,	7½-inch bellows and	3½-inch stove,	$2 00
Conqueror,	7½ " "	" 3 " "	1 75
Large,	6½ " "	" 2½ " "	1 50
Extra,	6½ " "	" 2 " "	1 25
Plain,	6½ " "	" 2 " "	1 00
Little Wonder,		1¾ " "	65
Uncapping-Knife, 2x8-inch blade			1 15

Address BINGHAM & HETHERINGTON,
11tfd ABRONIA, MICH.

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IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A.Whiting

Vol. XIV. JUNE 1, 1886. No. 11.

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MR. JAMES HEDDON.

A SHORT BIOGRAPHY, FROM THE PEN OF PROF. COOK.

I AM very glad to accede to the request to give a brief account of the life and work of Mr. Heddon. True merit should always be rewarded; and as I am acquainted with no more able, thoughtful, studious, and hard-working bee-keeper in the United States than Mr. Heddon, it is with no little pleasure that I call attention to his life, his work, and to the valuable results of his careful experiments and thoughtful, studious labors in the apiary.

Mr. Heddon was the first specialist in bee-keeping in Michigan, and one of the first in the country, and thus his fertile, active mind has ever been directed toward the pocket-book side of bee-keeping; and so, as we should expect, all his work, experiments, and influence are right in the spirit of this intensely practical age. Best of all, from a long and intimate acquaintance with him I feel assured that all his labor, both of hand and mind, has ever been impelled by an honest purpose and sincere desire to advance the vocation of his choice.

It has often been remarked, that Michigan owes much of her reputation for push and enterprise to the fact that most of her inhabitants came from New England, many gaining wide experience from a short stay in New York. Mr. Heddon took advantage of one of these New-York sojourns, as he was born in the rich Genesee Valley of Western New York, Aug. 28, 1845. Thus he is now forty years of age. Like Patrick Henry he had no irresistible thirst for book-learning, much preferring his fish-hook, his gun, and a stroll in the fields and forest. Very likely this was owing largely to the faulty methods of the schools. Had the dull books of stupid text-book writers been replaced by the interesting things fresh from nature, how eagerly would this schoolboy have probed them to their very depths! No one can know Mr. Heddon without recognizing at once that he is a natural student. Given the right mental food, and how eagerly would he have swallowed, digested, and assimilated it!

In stature, Mr. Heddon is below the average, while his form is slight and wiry. He is extremely nervous, and his keen, intense expression, and spare, almost pinched features, would lead Mrs. Harrison to remark that he was fed on mince pie, ham, and sausage. But let me say that I have been there, and I know that excellent sense and the best taste and judgment rule in the Heddon kitchen. Mr. Heddon is gaunt and lean because he has a twenty-horse-power nervous organism in a ten-horse-power physique. His nervous tension and mental energy have always been vexed that their dwelling-house were not bigger and stronger, and are determined to destroy it; and it behooves our good friend to look sharply or they will succeed.

Mentally Mr. Heddon is exceptionally vigorous and gifted. The Rev. Mr. Gage once told me that he was especially interested in a certain young man in his village, who, with an opportunity, would certainly make a scientist. Years after, I became acquainted with this same promising young man in Mr. Heddon.

As a speaker, Mr. Heddon is unusually vigorous. His sentences are always to the point, and his figures and illustrations are often irresistible. I have known him at our State conventions to hold every person spellbound as he explained, often at great length, his experiments, views, and methods. The same spirited, forcible style characterizes his writings, as all who read the bee-journals know. His nervous energy, excessive love of fun, and desire for hard-earned victory, make him an eager controversialist. He fairly grows fat, mentally, in a good square honest intellectual wrestle. I have sometimes almost feared, I hope without reason, that his love of triumph made him to rejoice at the discomfiture of an opponent as much as in the victory of the right and true. I have also wondered if, as with most of us, prejudice might not at times warp his judgment respecting those who differed with him in view. His nervous temperament, and slight, overworked body, would make this possible. As he has sometimes written me in a complaining mood of some element in the bee-keeping world, I have thought of Christ's remark to Martha, "Thou art troubled about many things," and have wished we were all Marys who had "chosen the good part" that should not be taken away from us.

JAMES HEDDON, DOWAGIAC, MICHIGAN.

How many of us have found the door to a delightful life, in the most beautiful and charming girl of the world! This was doubly true of Mr. Heddon. The "sweetest girl in the town" not only provided Mr. H. with one of the happiest homes in the State, but led him into apiculture. Miss Hastings' father was a bee-keeper, and with him Mr. Heddon worked one year. No wonder he advises all to take a year with an experienced bee-keeper. If he will furnish conditions like those of his own apprenticeship, I think few young men will hesitate. As little wonder that he looks so fondly on the "gude wife" when she took him from the dull routine, machine-like life of the clerk, into the active, pleasant, intellectual life of the apiary. This loving wife has been Mr. Heddon's only partner for the seventeen years of his bee-keeping experience.

Mr. Heddon has told me that he commenced bee-keeping with nothing except a stout heart, and he had given this away to that "sweetest girl." He has been a specialist all that time, except for a brief period of late, when he has sold supplies. This diversion he has told me was a loss to him. Now he is worth thousands of dollars. He went into the supply business in 1879, in hopes that, by a circular, he could answer many of the questions that now came to him in letters, and save time to his business. His present capital he credits almost exclusively to honey production. He has had as many as 550 colonies of bees at one time, which were kept in three separate apiaries. He now has 450 in two apiaries. In 1877 his Glenwood apiary, worth $1500, and numbering 99 colonies, gave him a cash income of $1070, and increased to 207 colonies, all but two of which came through the following winter in good condition. The expense in caring for this apiary that year was $200. One year, with 16 colonies he increased to 33, and sold $800 worth of honey. All of the 33 colonies wintered the succeeding winter. At that time honey sold for a very high price. His largest yield for one season, of a single colony, was 410 lbs., all but 48 of which was extracted. He once secured 29 lbs. 13 oz. of unripe extracted honey as the result of a single day's gathering of a single colony.

Of course, all has not been smooth sailing, as he has as large stories to tell of winter losses. He thinks the winter of 1884-'5 snatched $1800 from his pocket-book; yet he murmurs not, as he thinks that winter solved the difficulty, and he will lose no more. We all hope he is correct.

Mr. Heddon is very neat and methodical. It is a very great pleasure to visit his place. I think I never visited an apiary where more taste and good judgment were displayed in all the arrangements of the bee-yard.

The valuable improvements which Mr. Heddon has given to our industry are many, and will most interest the readers of this sketch. All that I shall name, I feel certain are original, and nearly all I know to be excellent, from actual experience.

I have found the slatted honey-board a very valuable adjunct to the Langstroth hive. This, when made just right, keeps the sections perfectly neat. The spaces must be just over the center of the top-bars of the frames in the brood-chamber, and the spaces between top-bar and slats no more nor less than a bee-space. This prevents the brace-combs, and such a honey-board needs only to be tested to be retained in every apiary. His modification of the Langstroth hive, omitting the portico, the telescopic upper story and cover, and the bevel of the Simplicity, have so pleased me, after a two-years' trial, that I would never think to return to the old styles. Those who condemn, surely have never tried it. The shade board is also much superior to tree, evergreen, or grapevine.

Like myself, Mr. Heddon used sections before he ever saw them elsewhere. Though original with us, their use in our apiaries may not have priority.

Mr. Heddon's shipping-crate, as I state in my book, is neat and cheap, and was the first substantial improvement in that article.

The section-crate, with bee-space above and below, will probably never be excelled in securing comb honey without separators. After two years' use I pronounce it simply perfection. I was almost disappointed in not seeing it in the new hive.

I have already reviewed the new book, and there spoke of the new hive and system. There can be no question of the originality of these, and hardly less that they are a marked improvement and will soon come into general use. I have never tried these, but the experienced bee-keeper does not need to try every invention to be assured of its excellence.

Mr. Heddon has also practiced the principles of breeding, as followed by our successful breeders of other domestic animals; that is, he has crossed two valuable breeds, and by selection has secured a strain, with the excellences of both the original races, and without their undesirable qualities. He claims this; and while I have not tested his improved strain, I am certain that the above is the method which must be employed to secure the best bee.

Lastly, Mr. Heddon suggested the "Bee-keepers' Union," which may and will be of great service to our industry. Each of us is liable to prosecution by those ignorant and prejudiced, and we need just such an organization to aid us in protecting our rights, and in maintaining the high position which our industry deservedly holds among the pursuits of the world.

Mr. Heddon has been President of the Michigan Association, and a very poor one he made. A president must be staid and serene, and without nerves, which does not describe our Dowagiac friend.

I wish I could say just how many children our friend has. This I know: That when at his house, some years since, among the many attractions I saw were some very beautiful children, those best ornaments in every home. A. J. COOK.

Agricultural College, Mich., May, 1886.

RAISING PLANTS FOR HONEY ALONE.

FIGWORT.

IN the spring of 1883 I planted an acre of figwort roots on rich, low ground. The ground was well prepared, marked both ways as for corn, and the plants came up finely, scarcely one missing, although a good share of them were shipped from Medina, Ohio. Part of them I found growing near home, and these were transplanted, with no chance for drying the roots. I don't know that I could see any difference in the growth of these latter and the ones that were shipped. They were carefully tended, the same as corn, with cultivator and hoe, grew finely, and, a little before white-clover bloom was over, came in bloom nicely. When in full bloom it was a fine sight to see how thick the bees were upon them. I can not say how much honey the acre yielded, nor what was the quality. I have often wondered how it could be determined so accurately what quantity of honey could be obtained from a given amount of pasturage; and the quality, where the resource is limited. I am of the impression, that, to be profitable, a honey-plant that yields no other crop must be able to hold the ground after the first year, without any cultivation, so the second year my field of figwort was left untouched. It grew finely, and blossomed as profusely, if not more so, than the first year. Some weeds grew up among it, but not a great many, as it had been kept as clean as a garden the preceding year. The weeds seemed to do little or no harm. Thousands of young plants came up this second year, from seeds dropped the first summer. I let them all grow, holding rigidly to the plan of leaving the ground to take care of itself. I looked with some interest to see whether the next, or third year (1885), the young or old plants would do the better. But I looked in vain. Neither young nor old showed a leaf. They were dead, root and branch. Would they have lived better on different ground? Sweet clover lived through, side by side, on the same ground. Would they have lived through if the winter had been milder? It was, perhaps, the severest winter ever known here. Would it have done better if the ground had been partly occupied by grass? Where I have seen it growing wild, it has been in thick grass (although I have seen very little thus growing), or on ground more or less shaded. Would it take care of itself in a basswood grove?

MELILOT, OR SWEET CLOVER.

This is imported under the name of Bokhara, although some think there is a little difference. Perhaps the principal difference is, that the imported seed is cleaned of the hull; the domestic, not. For years I have known little patches of melilot on the roadside, or elsewhere, that seemed to take care of themselves from year to year. Moreover, from all I have read about it I thought I had a right to infer that it would grow and prosper anywhere, simply by scattering seed there. Now, however sure it may be to grow under the most adverse circumstances, and prosper with the most provoking persistence where it is not wanted, there is possibly such a depth of ignorance and bad management as to wither even the ambition of sweet clover. I have spent perhaps $40.00 in trying to get a fine stand of it, and am compelled to say it has been mostly a failure. Before I forget it, I want to say that, so far as I have observed, the quality of soil seems to have little to do with the success of this plant. Perhaps the rankest growth has been on yellow clay, or subsoil thrown up, where nothing else cared to grow; but possibly the very fact that no other vegetation grew there gave the melilot a better chance. I have, however, seen nearly as good growth on bottom land, with rich soil. I reasoned that, as the volunteer patches had no care from year to year, simply the seed dropping on the ground through the fall and winter, if I imitated this, success was certain. So, when a light snow was on the ground I sowed some 20 acres, including ground in almost every condition. Some of it was pasture, some sod which was not pastured; some, ground which had been in other crops, some very rich, some so poor that it was as bare of vegetation as the middle of the road. In this poor, bare ground, occasionally a seed grew, perhaps a rod apart; but what did grow was strong and vigorous. On a bank of yellow clay, thrown out in digging a cellar, was a pretty good catch, and some seed came on ground which had been cultivated, especially on the low ground, adjoining the figwort. I do not know that a single seed grew among the grass, either pastured or not. This seems strange to me, for I have seen it growing well in grass where self-sown, and I can not see why, in all these acres, none came. I have done nothing since with any that did come, and it has held its own, and in some places has increased to five patches, perhaps, in all, covering an acre or more. Some that was covered lightly with a hoe in the fall did pretty well. Mr. Root, I think, recommended sowing with a drill. I believe it would be an improvement. Where it is self-sown, only a few out of thousands of seeds grow; and if covered, more might grow. I had better success sowing on the roadside. Of course, it could not grow in the middle of the road, but on the edge, just at the line of demarcation between the road and the grass, it did well. In general, what fell among the grass never came; but there was one place where it grew well for a long distance right in thick grass. The only way I can account for its growing just at the edge of the road is, that at that point the wheels in a muddy time would imbed the seed in the ground, but not run over it enough afterward to prevent its growing. The place where it grew in the grass was one where wagons were sometimes driven, especially in a muddy time, but never traveled enough to kill the grass.

One spring I had a piece of ground nicely prepared, and sown with oats. After the oats were dragged in, melilot was sown, and I can not tell now whether it was brushed in or not. It came up well, making a very nice, even stand, but pretty thick on the ground, if it should stool out any. The next spring I looked with eager interest, almost before it was time for it to start, but could find very few stalks starting. Later I could find but few, and their roots seemed coming out of the ground. By the time it should have shown big stalks, not a sign of one was to be seen on the ground; and although the ground has since been untouched, not one plant has appeared, the ground being well covered with clover and grass, which came up of itself. Was it because the ground was so nice and mellow, that the frost heaved out all the melilot? If we had a drill that would plant in hard ground or sod, would it be a success? C. C. Miller, 340—226.

Marengo, Ill., May 20, 1886.

Friend Miller, we are very much indebted to you for the facts you have given. I did not know before that anybody had ever started out on so extensive a scale as 20 acres of any one single plant, for honey alone. Your experience in figwort is about like my own, only mine didn't all die the third year. The plants got rusty and sickly, and sort o' dwindled away. A new plantation, now in its second year, is looking beautifully. I agree with you, that it is very difficult indeed to tell how much honey we get from a certain plant. I have sometimes thought I should like to find a locality where there was absolutely no yield of honey at all; then I would have an acre of figwort for, say, four or five colonies of bees. If these bees gathered honey, and filled sections while the figwort was in bloom, and gave nothing as soon as it was out of bloom, we could tell something about it. Our efforts to cultivate sweet clover were also a good deal like yours, although one patch on poor ground showed, the second year, during the months of May and June, such a beautiful stand that farmers came to see it for some distance around, and it was a good deal talked of as a forage plant.

There is something funny about this whole matter of nature and art. Plants that have been cultivated for years, like wheat, oats, corn, etc., behave correctly, and almost invariably thrive under artificial treatment; but plants that have always been wild, some way don't seem to take kindly to artificial methods; in fact, they die under the best of care; while if let alone they thrive wonderfully. If we closely look into the matter, we may, perhaps, find some little trifling thing that upsets the whole experiment. Just now I am a good deal puzzled about my poultry. A hen that has the range of our whole 18 acres made a nest on the ground, under a lumber-pile, and she hatched every egg but one; and more than that, she went off with her eight chickens, without a bit of care from anybody. When they were four or five days old she was discovered off by herself, with every chick as bright and brisk as a cricket. They didn't have any corn meal nor cracked wheat, nor bread and milk, and yet they seemed to be good for a half-mile tramp, chasing their mother. Well, in my nice poultry-yard with all its modern appliances, I get only two or three chickens from a setting—sometimes not a chick. Last season I feared my Brahma rooster was bad, and so I bought a higher-priced one; but it does not make any difference. Old Dame Nature beats me all to pieces. The fowls that have the run of our whole 18 acres board themselves, lay eggs, and raise chickens; expense, 0; income, a good lot of eggs every day. Your expression, "depth of ignorance and bad management," some way seems to fit me tiptop. Well, I think I know where the truth is. If we try hard enough we can assist nature; but if we don't look out, we shall be only stumbling-blocks. May God give us wisdom in our work with honey-bees, honey-plants, poultry, stock, and all these other wonderful and necessary gifts to his children!

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER VI.

A TALK ON SWARMING.

AS the Meek family gathered around the dinner-table that day it would have been difficult to introduce a conversation on any subject but bees, all were so excited by what had occurred. The reader might be interested in some things there said.

Jane remarked, "It was too funny to see the bees pouring out of the old nail-keg, as they seemed so very anxious to get out; they seemed as if anxious to leave the old hive. It seems strange to me that they should want to leave the old hive, which has plenty of honey, and go out into the world without knowing whether or not they could find a hive or hollow tree in which to live."

Her father replied, "In like manner I have often wondered that a young lady will leave her father's house, nicely furnished, where she can have all her heart could wish, and go away, often to a distant State, with a young man who is not able to afford her even a comfortable house."

Jane said, "I will never do such a thing. I will always stay with you and mamma, and my dear brother Tommy."

Said her father, "You no doubt feel so now; but I think when you are a woman you will change your mind. At least, I could hardly expect that you would do differently from what your mother did; and I know she left a nice comfortable home, the society of parents, brothers, and sisters, and came away here with me, a poor minister, who had no home of my own to offer her."

Jane replied, very innocently, "But then, it was to live with *you*, papa; I would go anywhere to live with you; but I will never leave you and ma, and go anywhere to live with a strange man or boy."

Mr. Meek looked over at his wife. There was a smile on the faces of both. He then said, "I think it is this way about the swarming. God has planted in the heart of all living things a desire to multiply their kind. Bees multiply by swarming. When they become numerous in the hive, and begin to be crowded for room, they swarm, and thus form a new colony."

"I wish, papa," said Jane, "you would tell us all about bees swarming, for to me it is a very strange and curious thing."

He accordingly began. "I have told you that the queen is not the ruler of the hive. If there are rulers in it, I think they are the busy little workers. I imagine some pleasant day, when honey is coming in nicely, and the hive is rapidly increasing in population, a number of these busy fellows put their heads together and ask each other, 'Don't you think we had better have a swarm?' All present being of that mind, they then pass through the hive, saying, in bee-language, to every one they meet, 'We must prepare for swarming.' Well, the first preparation they make is to begin raising drones. The queen lays two kinds of eggs, called drone and worker eggs. Bees also build two kinds of comb, called drone and worker comb. The drone-comb has larger cells than the worker, and in it drone-eggs are laid, and in it drones are hatched. Both kinds of comb are also used for storing honey and pollen. If the bees have no thoughts of swarming, the queen either does not lay in drone-cells, or, if she does, the bees destroy the eggs. But when once they get what is termed the swarming fever they are as careful of the drone as of the worker brood. The next step is to construct queen-cells. These cells are very different from the other two kinds. They are placed in an opposite direction on the combs, the open end being downward, and they are never used as store-cells. The queen either lays worker-eggs in these cells, or the workers remove eggs into them. Queens can not be hatched from drone-eggs. It is believed that it is the kind of cells in which queens are hatched, with the kind of food given them by the workers, that makes them queens. When bees want to raise a queen they are not satisfied with one merely, but build a number of cells, and raise a number of queens. For a time after the queen-cells are formed, the queen does not seem to pay any attention to them. Eight days after the eggs are laid, the young queens are large enough to be sealed over. It is then that the first swarm comes off. The old queen, impelled by some motive, leaves the hive, accompanied by a great number of bees, and form what we call a swarm. Remember, the old queen always goes with the first swarm."

Tommy here inquired if the queen Mr. Brown gave them in the nail-keg was now in the new hive.

His father said she certainly was, unless she had died, and the bees had raised another to take her place.

"There is no queen in the nail keg now, but there are little baby queens in their royal cells, or cradles. In eight days these cells will hatch, and then probably a second swarm will come from the old hive."

"Oh! I remember," said Jane. "The book tells us that, if we put our ear to the old hive, just before the second swarm comes off, we can hear the queens saying peep, peep; just like little chicks when they chip their shells, and I will hear them if I can."

Her father continued. "The first queen that hatches out wants to tear up the other cells and kill the young queens in them. She may then depart with the second swarm, which is always a smaller swarm than the first; and, if the weather is favorable, it may be expected on the eighth or ninth day after the first. If there is a third swarm it will probably be the same day or the second or the day following. It will be still smaller than the second. There ought to be no third swarm, and it would be better if there were no second; but the bees in a hive seem at times to be seized with this swarming-fever so badly that they will swarm until the old colony is almost broken up."

"I should like to ask you, papa," said Jane, "if bees hunt up a future home for themselves before they come off as a swarm."

"That is a thing not positively known," said her father; "but the general belief is, that bees swarm, and settle as ours did to-day, and then a company start out as scouts to look up a new home. If the swarm is hived before long, and the hive then removed to its stand before these scouts return, all is well; but if not, and the scouts find a tree, and then return to the colony, they may induce it to leave the hive and go to the woods, even after it has been hived. It is certain that some colonies go to the woods without having selected a tree, and there cluster upon some branch until a tree is found. There are also other instances that seem to indicate that the bees had their future home selected before they swarmed. Hence I say your question is one I can not answer. I think if an apiary is properly watched during swarming time, the swarms hived in nice cool hives, and then shaded from the sun, not very many colonies will leave for the woods. Still, there will be one now and then, notwithstanding the greatest care. Usually those losing many colonies are careless persons. Their bees swarm unnoticed, hang until tired out, and then leave for the woods. Or they are hived, and then placed in the sun without a particle of shade, their new combs melt down, and they leave for the woods."

The next day at dinner Mr. Meek said to the children, "That was a large swarm, and it ought to make us some surplus honey. I want you to make ready a case of sections, and place it on their hive."

The children were eager to do this; but of course their father had to show them how to do it. They first brought a rack, and enough sections to fill it. Each rack held eighteen. They then selected eighteen pieces of thin foundation, and dipping the end of each piece into a melted mixture of beeswax and rosin, which their father had prepared, they quickly placed that end in the center of the top piece of a section, and held it there for a few seconds until the melted wax cooled, and securely fastened it. Thus they prepared the entire eighteen. They next arranged them in the rack, with boards on each side, and separators between each row of sections. The three rows had the appearance of three ordinary-sized honey-boxes, only differing in the manner in which they could be taken apart. Mr. Meek had directed this work, and now with a wedge-shaped strip he pressed them firmly together, and they were held so.

The smoker was then lighted, and a little smoke blown into the entrance of the hive. After waiting a few minutes he took away the cap, while Tommy, with a screw-driver, loosened the boards over the frames, and removed them. While he was doing this Jane used the smoker, blowing a little on the bees whenever they showed any signs of becoming excited. Mr. Meek looked at the combs which had been already started, and said they were being built straight. Tommy then placed the case of sections on the hive; and when all was nicely arranged Mr. Meek replaced the cap.

To be continued July 1.

SOMETHING ABOUT HONEY FROM THE SPANISH NEEDLE.

ALSO SOME HINTS IN REGARD TO GETTING RID OF SMALL ANTS.

FRIEND ROOT:—Like a general in the army, you seem to be "headquarters" in apiculture, and are continually receiving reports from all along the line; but, *un*like the general, you send those reports right back so that all may know what is being done.

I live near the middle of a prairie—being about two miles from timber on two sides, the other two sides being treeless except orchards, which are quite numerous. I have but a few colonies of bees; and when the bees have to go to the timber for pasture I find those near the timber are more prosperous than mine; but during the smartweed and Spanish-needle bloom, which are our principal honey-plants here, my bees excel others' in producing honey. The condition they are in at the beginning of the honey-flow may have something to do with it, as I endeavor to have strong colonies at that time. The Spanish needle of which I speak is different from the Spanish needle in States further east. It has a yellow flower, and the seed is broad and flat, with a needle-like projection from each corner at the outer end. The length is about the same as those of the other variety of Spanish needle. The honey has a yellowish tint, and is of a nice rich flavor. I do not find this plant mentioned in the dictionary, and it may have some other name; but I know of no other, and I mention it particularly because of its abundant yield of honey. We have some white clover, but not enough to get surplus honey from. Some of our bee-men are having alsike clover seed sown by way of experiment, to see whether it will be profitable.

In this section, as far as I know, wintering is generally done on summer stands, with little or no protection, except a fence or orchard for a windbreak. I know of one man who set posts along the west side, to the tops of which he nailed a board, and against which he stacked corn-fodder. His buildings served as protection on the north. I might add, chaff cushions are used by all practical beekeepers within my knowledge.

Last season was not a good one for honey—about one-third of a crop, or 40 lbs. per colony, being a fair average. The increase was not enough to make up the mortality of the previous winter.

I notice in the reports that some are troubled with little red ants in bee-hives, eating queen-cells, etc. No person who has not had experience knows, or can form any idea, what a trouble and pest these little ants can be. They will get in the cupboard, and are especially fond of light bread, pies, cookies, etc. The good housewife may set the legs of her safe in water; but if one of the cups becomes dry, or she leaves the broom leaning against it, or it touches the wall in any place, she is horrified to find the little red creatures have invaded her pantry. If there is any thing in the world that will make a woman scold, it is red ants. She may brush and rub and scrape and scrub, only to have a new army as soon as the shelves are dry. Some one said in GLEANINGS, "Treat the nests with hot water." But whoever saw a red-ants' nest? They must have had a microscope. Why, I should think half a dozen full-grown red ants could get on the head of a common brass pin, and not be crowded either. I judge they can smell, but they must have a small nostril. I don't know how they can find sweets so readily unless they can smell. Last summer they got in my honey-house, in my honey, and among my bees. The first thing I did was to clean out my house—emptied it of every thing, and gave it a thorough cleansing with soap and water. When it dried (as it soon did) I saturated the floor with kerosene, and was afterward careful not to let honey-cans touch the side of the building. I was not bothered with a red ant there afterward. I then saturated the bottom-board and lower edge of a hive, and was troubled no more in that hive. We took covers of glass cans and set under safe-legs, and filled the cups with the same liquid. It is soon absorbed; but about two applications are sufficient

to keep these pests away for a season. The scent of the oil seems to be obnoxious to them, and they will not cross where the oil has been applied. Let those troubled with red ants try coal oil, and report success.
GEO. WISEHEART.

Iola, Clay Co., Ills., Feb. 22, 1886.

MOVING BEES IN THE DEAD OF WINTER.

NOT ALWAYS FATAL, AND SOME OTHER FACTS IN REGARD TO THE MATTER.

IT struck me that a report in regard to my success in moving bees during the past and previous winters might not be out of place, as there seems to be a great aversion to moving an apiary during the cold season. I commenced bee-keeping with one swarm in the summer of 1881. This was moved about Christmas, by sleigh, a distance of about 12 miles. It was in a hive holding a frame about the size of the American.

The summer of 1882 found me with 4 swarms, the first having swarmed three times. These I fed about 40 lbs. of granulated sugar, having previously taken about 12 lbs. of honey. I packed them in boxes, leaving about 6 inches on all sides, filled with cut straw. I again moved, about New Year's, 12 miles, and again in April, 1883, 3 miles, in each case by sleigh. The four colonies wintered well; and during that year I transferred to Simplicity hives and increased to 14, with 303 lbs. of surplus honey. I fed 73 lbs. of granulated sugar, and moved all colonies in October, 1883, 5 miles, to the railroad station, and thence per car 30 miles.

After moving I transferred all to chaff hives (Root's). I found a great many bees had died in transit; having left the quilts on, the bees had forced their way above, and had either died of starvation or suffocation. The day of moving was very warm. Three of these succumbed during the winter of 1883, leaving 11, spring count. During the summer of 1884 I increased to 22, taking 475 lbs. of surplus honey. I fed 142 lbs. of granulated sugar. These were moved again in October, by wagon and car, a distance of 80 miles; 14 were in Root's chaff hives, and 8 in Simplicity. The Simplicity I packed in straw clamp.

A large quantity of very dark honey was gathered during the fall, which I took to be goldenrod, as the blossom of that plant was particularly profuse that season. Soon after Christmas the bees began to show signs of uneasiness; many were evidently affected with dysentery, and on the slightest moderation of the extreme cold they came out and dropped from the alighting-board on the snow. During the mild spell at the end of February, I found that 16 were dead; the remaining 6 were all either very weak, badly affected with dysentery, or both. I fed the survivors candy. When I again examined I found that all were gone. My consolation was, that I was not alone, and that bee-keepers near by, with five times my length of experience, had suffered a similar loss. I took heart of grace, and in the spring of 1885 I sent for 4 four-frame nuclei from Viallon, and some queens from Root. The first nucleus proved a complete failure, through a young queen being hatched out, and the old one being destroyed. From the other three were built up 11 good colonies. I took 360 lbs. of honey, extracting all after the flow had ceased, and then fed 287 lbs. of granulated sugar made into syrup.

In view of the fact that I intended to move the bees again during the coming winter, and the loss of the previous winter, I took particular care in fixing up. Having raised the frames about 1½ inches higher than their summer position by placing blocks under the shoulders of frames, I contracted the brood-chamber to about two-thirds of its usual size, leaving half the number of frames properly spaced. I then packed chaff behind the division-board, pinned the frames to the blocks with large tacks, arranged a space above the frames, covered with cloth, then packed loose chaff to fill the upper story of the chaff hive. On the first of February this year, the hives were removed one mile and a half to the car, remained 2 nights and nearly 2 days on board, during the coldest snap we had last winter. They were then removed from the railroad station, stored in a room for two days and nights, then moved to the open air, the snow piled up on the north-east and west sides, with a slight covering over the entrance on the south. They were then moved again April 5. On examining them I found all in excellent condition, queens all present, raising brood, and very few dead bees; in some hives there were none at all.

I hope not to have any more experience in moving bees in winter. I thought this report might be of some benefit to any who may find it necessary to do so. I was much inclined to sell rather than move, but selling would have been the more expensive way out of the difficulty.

T. CHAPMAN GRAHAM.

Wingham, Ont., Canada, May 3, 1885.

Friend G., I should think you had had experience enough in moving bees in the winter time. If I were you I think I would stop moving bees or else stop keeping them. We value the facts you furnish, however.

THE LOCATION OF AN APIARY.

THE IMPORTANT BEARING IT HAS UPON SUCCESSFUL WINTERING.

MY experience corroborates the words of Mr. France, on page 352 of the current volume of GLEANINGS, where he says: "In the location of an apiary I am satisfied that a great deal of our success or ill success comes." My home apiary is located on the south side of our barns, and near enough them to be protected from the north wind. The other sides are partially protected by an orchard. Here I have wintered, on an average, 78 colonies during the past six years; and, with the exception of winter before last, when 12 out of 117 starved to death, I have never lost a colony. Last fall I packed 155 colonies in this yard, and I have 152 at present, one having been stolen during the winter, and the other two being queenless.

My hives are in rows running east and west, and quite close together; and it is a noticeable fact that the outside row on the south contains nearly all my poorest colonies. It seems almost incredible that one row of hives should furnish appreciable protection to an adjoining row, yet I am unable otherwise to account for the great difference between this outside row and the rest of my colonies.

Two years ago I started an out-apiary. Not appreciating then, as I do now, the importance of a good windbreak to an apiary, we selected ground which slopes to the east and north-east; and where both the north and south winds have an unimpeded sweep. Winter before last we lost one quarter of our bees in this apiary, while most of the others came through mere wrecks. The past winter, one-sixth were lost, while many of the rest are in poor condition. Furthermore, the upper row of hives in this apiary is placed along a brush-grown fence which affords it very material shelter from the north-west wind. And it is a fact that this row of hives came through both winters in much better condition than any other.

Now, if it is true, as I believe it is, that successful wintering is dependent very largely on the protection which the location affords, we have one explanation of the diverse results which often come from otherwise similar methods. So long as my experience was confined to my home apiary I did not realize how much my successful wintering was dependent on my sheltered location; and had I written an article on the wintering problem I would have dwelt almost entirely upon my method of feeding, preparing, and packing my bees for their winter repose, while the chief element, as I now believe, in my success—the mere accident of a sheltered location—would probably not have been mentioned.

This has been the best spring for giving the bees an early boom that we have had since I have kept bees. For ten days in April we had summer weather which forced fruit-bloom along at least two weeks ahead of its usual time. It is already on the wane, while in other years it has usually been only fairly begun at this date. Last year, hard maples were fairly opened for honey-gathering on the 9th of May; this year, the bees were roaring among them on the 22d of April. JAS. MCNEILL.

Hudson, N. Y., May 10, 1886.

BEE-STINGS FOR RHEUMATISM.

AN EXPEDITIOUS WAY OF APPLYING THE MEDICINE.

THE following article was written by my friend Wm. Vennamore, for the Maxwell *Tribune*. I had advised him to use the bee-sting cure for his rheumatism; but I didn't suppose he would put a "small paper sack well filled" up his pants leg. It has caused ever so much laughter and merriment here among the neighbors; but his rheumatism has disappeared.

D. E. BRUBAKER.

Maxwell, Storey Co., Ia., May 15, 1886.

Mr. Editor:—I have been afflicted with rheumatism for some time, and have tried most of the remedies said to be good for such disease, but received little benefit. One day last week I thought the good Samaritan had come, in the person of Mr. D. E. Brubaker: perhaps you are acquainted with him; he has a bee-ranch south of town; a clever fellow, too, he is. He told me bee stings were the best thing in the world for rheumatism, and if he should ever have it he would try the bee remedy sure. Thinks I, we've got the medicine right here at home, and it won't cost any thing, and I will just try a few: I think people as a rule take too much medicine any way; better try more home remedies. So, provided with a small paper sack and some courage (for I must confess I was always a little careful not to disturb bees, for it hinders them from gathering honey, you know), I held the open sack at their entrance and soon had it well filled with the buzzing creatures. I then made straight for the house and gave sack and bees to wife and held open my pants leg and said, "Now start 'em up." She pushed sack and all up arm's length, and laughed a little, and asked, "Are they going?" Says I, "You bet!" Just then one administered, and I grabbed for him (as is natural on such occasions), and from that every last one laid to, and four doctors with eight resurrecters couldn't do business so lively as those bees did. I, in a rather commanding manner and tone, screamed for wife to take 'em out, but she seemed to be slow about it, so I got out, and left breeches and bees in the same room, and I went to bed in untold misery, and two times as mad to think I would try everybody's remedies. After this, others can try bee-cures and bee-*men's* remedies, and I will try Hostetter's or McLlain's remedies. HAY SEED B.

Friend B., the principal point to me in the above little sketch is, that the rheumatism has disappeared. I am inclined to think, however, a smaller dose would have answered every purpose. Many of our readers will remember the facts that have been brought forward in our back volumes. I think that it is pretty well settled that poison from bee-stings is many times a cure for rheumatism.

SMALL COLONIES, AND MOTH WORMS.

THE REASON WHY A SMALL COLONY CAN NOT STORE AS MUCH HONEY PRO RATA AS A LARGE ONE.

IT is said by some, that a weak or small colony will store as much honey, pro rata to the number of bees, as will a large one; but I think this has not been clearly proven. To substantiate the theory, it is argued that a colony having two combs of brood, and bees enough to cover them, being placed in a full hive of combs, will store as much extracted honey in proportion to their numbers as will a full colony having eight frames of brood in the lower story, the same being tiered three or four stories high. The argument holds good in all except one particular, and in this it is very deficient. Let us look into their workings a little. The full hive has brood to the capacity of the queen, so that the tiering-up of the other stories on top does not increase the amount of brood any, especially when a honey-board is used so as to prevent the queen going "up stairs." Thus the bees have only so much brood to feed as the storing advances, and the colony has a large force of bees in excess of their brood.

Well, how about the small colony? The queen has brood to only about one-fourth of her capacity, while the brood is in excess of the bees — so much so that I have often seen 500 bees keeping from 3000 to 5000 of brood; and as in the small colony the queen is not restricted as to egg-laying only by the number of bees, her brood advances in excess of the mature bees all the while until the limit of the hive or her capacity is reached. Then we find these few bees struggling hard to supply the wants of the brood all through the honey-harvest, so that, when said harvest is as short as it is here, the result proves to be, at the end, little or no honey, with a host of useless consumers raised from this brood to eat the little honey the small colony have succeeded in laying up. I think I have made the matter so plain without further enlargement, that all will see the force of the argument, and have all strong colonies by uniting the weak ones, or otherwise building them up early. If the queen could be restricted to only the two combs, then the pro-rata yield might hold good; but where would the bees come from for wintering? Strong colonies at the time of the honey-flow is about the only thing that can give the apiarist any assurance of success. Because the Syrian race of bees will not build up with me before the honey-harvest, and commence to breed rapidly as soon as it does come, so that they work on the same plan as does a small colony, is the reason for my discarding them. That the Italians will give more bees at just the right time, and less at all other times than any other variety, is the reason for my preference for them.

MOTH-WORMS.

Lately I have been reading that moths "will never breed in combs that contain no bee-bread," the idea being advanced that, if no pollen is contained in our section honey, we need have no fear of the larva of the wax-moth injuring the nice cappings of the combs. I wish that such were the case, for then no one need fear the moth in section honey, as those containing pollen could be left with the bees to care for till late in the season, or treated with burning sulphur. Quinby says, page 144 of his "Mysteries of Bee-Keeping," "Worms work only on the surface, eating nothing but the sealing of the cells;" again, "*Wax, not honey, is their food,*" and tells us all about how we must destroy these worms, unless we would have the nice cappings of our cells destroyed. From former years' experience I know that boxes of surplus honey have had all the sealing to the cells eaten off by the moth-larvæ, when not a cell containing pollen was to be found, while a friend had nearly one-half of his surplus honey ruined for market in 1874 by not knowing that he must look after the worms. I have seen moth-larvæ thriving both between sheets of fdn. and cakes of wax; and I know that this pollen theory regarding the wax-moth is not—but, hold on! At Detroit, at the National Convention, this same theory was advanced in a discussion of this question, to which I listened very attentively. One brother stated that he had found worms living in a box of wax, when the strongest advocate of the pollen matter told us that there was no wax on the market, or to be found, which did not contain pollen. So it would seem that there is no use for me to say any thing regarding what I am certain of, for there is pollen everywhere, so it matters not whether side-storing or top storing is adopted, as there is pollen enough in the wax of our comb to breed moths. I wish to say, however, that, as a rule, I get more cells of pollen in the boxes at the top of the hive than I do in those at the sides, and in neither place do I get pollen enough to be seen or tested in more than one section out of 300. One thing I am glad to say, which is, that we have little trouble in this locality now with moth-worm to what we did ten or fifteen years ago; and had Quinby lived to write his book at this time, instead of 1865, that chapter concerning the case of box-honey, to keep it from the moths, would probably never have been written. Still, it is always well to keep a good lookout for this pest, and I give this warning in time, so none need be "caught napping." G. M. DOOLITTLE.

Borodino, N. Y., May, 1886.

Friend D., if I have ever taken the position that a nucleus would store as much honey as a full colony, I think I must have been off from the track. Circumstances, however, might have something to do with it. If a nucleus were made of frames of brood taken from a full colony, there might be a period when the bees from this brood would be of just such an age that they would gather honey equal to a full colony, in proportion to their numbers. At such a time, when a young queen commences to lay, before they have larvæ to nurse, I do not know but that they might, for a few days, gather more honey than a full colony. I have often noticed weak colonies, however, that became weak from spring dwindling (when there were not bees enough to properly care for the brood) that would gather hardly enough stores to keep them from starving, when full colonies were working heavily in boxes. I remember one spring when the bees were so cross, just before the fruit-bloom, we could hardly open a hive, or do any thing with them. Well, fruit-bloom, came out and every thing was lovely —bees were gentle, and easy to handle. But one day I came suddenly upon a colony that was so ugly it seemed to me they could not have had notice of the abundant yield of honey evident in every other hive; and, come to get the combs out, sure enough there were so few bees that could be spared to go into the fields they had hardly a drop of new honey, and were as cross as if none had come at all.

In regard to moth-worms and pollen, I feel quite well satisfied that moth-worms are a good deal worse in combs containing some pollen, although I presume likely they often work to some extent in combs where little or no pollen is visible. I have never seen moth-worms on combs of newly made foundation; but one of our customers reports finding moth-worms among sheets of foundation laid away in a box. In this latter case it is evident they were feeding on beeswax; for if any pollen should stay in the wax through the operation of melting and dipping, it must certainly be in extremely minute quantities.

SUB-EARTH VENTILATION.

SOME FACTS IN THE MATTER BY ONE WHO HAS PRETTY THOROUGHLY GONE OVER THE GROUND.

FRIEND ROOT:—I see that you and a number of your correspondents are considerably exercised over the subject of sub-earth ventilation. Mr. C. C. Miller has an inquiring and suggesting article in April GLEANINGS, pages 258–'9, in which he is investigating the matter by experiment. This ground was all explored years ago by Prof. John Wilkinson, whose place of residence, some six or seven years ago was in Brooklyn, N. Y. Prof. Wilkinson is a civil engineer, and he patented a process of warming buildings by a system of sub-earth ventilation. He applied his system to dairy-rooms, stables, and barns, and proposed introducing it into dwellings. In fitting up a dairy cellar, to get the most perfect results the walls were insulated by studding inside, and lining with building-paper, thus creating a dead-air space between the paper and walls. The depth of the ventilating-pipe varied from 5 to 12 feet. In New York, and latitudes further north, 5 feet was deep enough for summer ventilation for a dairy-room. In the latitude of Topeka, Kansas, where the hot south winds blow almost constantly through the summer, and the air is very dry, he recommended 12 feet depth and 200 feet in length for the tile ditch.

To cause a draft, the outlet pipe was connected with a flue, and a gentle heat, by steam or other means, caused a draft in the flue. This draft was regulated by dampers. In order to warm cellars in the cold northern latitudes in winter, the conditions would require to be reversed, and a deep ditch made for the air-duct. Tile or stone was used for these tubes—flat stones for covering being preferred to tile.

The professor had also a patent for constructing a perfect horse-stable. He gave a great deal of attention to building stables and barns, with a view to warmth, pure air, and comfort. Certificates from the owners of dairy-rooms spoke very highly of his sub-earth system. Prof. Wilkinson supplied plans and specifications for sub-earth repositories, charging about $10.00, which is much better than to try to construct one by feeling the way by experimenting. If he is still living—he was in his 70's when I last corresponded with him—he could supply reliable information for the construction of sub-earth ventilators, with plans, cost, and all information required. My books were burned which contained the professor's address, but doubtless a letter would reach him, if still alive, directed to Brooklyn, N. Y.

Rising Sun, Md. E. E. EWING.

Many thanks, friend E., for your timely suggestions. My attention was first called to the matter of sub-earth ventilation by articles in the papers from Prof. Wilkinson. I afterward corresponded with him in regard to the matter, and he gave me a plan for a bee-cellar; but at the time I thought it too elaborate and too much machinery. You recall one item I had forgotten, and that is, that these sub-earth ducts can be used in the summer for keeping our rooms cool, as well as in winter for keeping them warm. Now the mystery to me is, why this matter has been dropped while such a wonderful field is open to us in the way of saving fuel by introducing air for ventilation, already raised to the temperature of the earth. If I remember, he recommended that the doors be made to shut as nearly air-tight as possible, that the windows be screwed down, and that all joints be made air-tight with putty. I am afraid, however, that during this beautiful May weather, when the balmy air just after a summer shower is being wafted in at the open doors and windows, it would be a pretty hard matter to induce people to keep the windows down, and sealed hermetically with putty, while air for ventilation came in only through long underground pipes. I still have very strong faith, however, that sub-earth ventilation may play a very important part in greenhouses—especially greenhouses having no heat except the heat of the earth and the heat of the sun. We should never need to open the ventilators in the roof, except when the heat of the sun is sufficient to demand letting some of the heated air out. This would start a current through the sub-earth tubes, and we could have a good current of air for a longer time without reducing the temperature as we do with the usual appliances. I should be glad to hear of any arrangements now in operation, made on the professor's plans, or to hear that he is still living and accessible.

PUTTING UP AND SHIPPING HONEY.

SOME EXCELLENT HINTS FROM A PAPER READ AT THE WESTERN BEE-KEEPERS' ASSOCIATION.

THIS branch of industry has grown, in the last few years, beyond the anticipation of the oldest apiarists. A few years ago our city and country trade was supplied by not more than a baker's dozen of our local bee-men, and they could not find sale for all they produced, without shipping it to distant markets, and waiting, perhaps, a whole season for their returns. For a man *then* to have shipped a carload of honey to Kansas City would have been suicidal to his finances. How different do we find it to-day! Kansas City makes ready disposition of all her home yield, in addition to large shipments from New York, Illinois, Michigan, Wisconsin, Iowa, Nebraska, Texas, North Carolina, Louisiana, Florida, and California. A reference to the *American Bee Journal* shows that Kansas City's quotations have been as high, or higher, than those of all other competing markets.

During the last season, we, as a firm, sold from 100,000 to 120,000 of 1-lb. sections of comb; from 90,000 to 100,000 lbs. of 2-lb. section comb, and 60,000 to 75,000 lbs. of extracted honey. Add to this, 50 per cent for the remainder of the trade, and we have the round figures of 225,000 lbs. of comb, and over 100,000 lbs. of extracted honey. These figures indicate that the "busy bee" must "improve each shining hour" more diligently to keep pace with Kansas City's love for honey.

Prices have ranged from 15 to 18 cents for 1-lb. sections; 11 to 16 cents for 2-lb. sections, and from 3 to 7 cents for extracted honey.

WHAT STYLE OF PACKAGE IS BEST ADAPTED FOR SHIPPING HONEY?

In commercial economy there is, to the producer, nothing of greater importance than the subject of transportation. In regard to the size, style, weight, and composition of packages and sections, there should be some uniformity of strength, and provision for easy examination of their contents. The most of the dealers are beginning to consider this point, for they discover that honey which is started to market as first class, may, on account of the packages, reach its destination as second class. The California producers have not yet adopted the 1-lb. section; hence most of the 2-lb. comb comes from California; but as they have already begun to agitate this matter, it will not be long before they adopt the 1-lb. frames, because they will discover that they can get more money for their honey. They use now exclusively 2-lb. frames; there being 24 frames to the case, and weighing in all about 60 pounds. We do not consider this a desirable size of package, but we would recommend the California package for extracted. It consists of a case containing two tin cans, each can having a screw top, and holding sixty pounds. This is far preferable to barrels or half-barrels. Dealers universally prefer it. Michigan, Wisconsin, and Iowa, use a very convenient size package for 1-lb. sections. If we remember correctly it contains 40 frames to the case, and weighs about 35 pounds net. The trade takes to this size of package as kindly as it does to smaller cases of 20 or 25 pounds.

We find that Missouri has a greater variety of packages than has any other State. We urge that your society exert its early and strongest influence to establish some uniformity in this direction. We suggest that, for one-pound frames, you pack two or three dozen in a case; and for two-pound frames, one or two dozen in a case—our preference in the latter instance being for one dozen in a case. We had so little call for the half-pound frames that we would recommend the abandoning of that size of section. Another suggestion, by way of improvement, is to mark plainly on every package the correct gross weight, tare and net, as well as the number of sections.

We can not, in this connection, refrain from referring to the highly important subject of the use of glass with honey packages. We have always insisted, and still affirm, that it is improper to glass every section. It does not take the consumer long to discover, when he is buying a pound section, that one quarter of it is glass. The consequence is, that you can not sell him many more such sections; and we suggest, therefore, that glass be used only in the front of each case.

In reference to the comparative merits of the different shipments of honey from different sections of the country, we will add that we have received consignments of extracted honey from North Carolina, Louisiana, Arkansas, and Texas. The finest-flavored honey came from North Carolina, and it was made from the huckleberry. It brought the highest price. The poorest honey came from Louisiana, and it was almost impossible to sell it; it looked and tasted more like molasses than honey.

PUTTING HONEY IN PROPER PACKAGES.

Now permit us to say a word respecting the preservation of honey, in taste or flavor. Some producers seem to think that all that is necessary is to preserve it in bulk—to see that none of it is lost. Now, the best of honey, like the proof of the pudding, is in the tasting. For illustration: We received a shipment of comb honey from Texas, which was made in water-buckets. The only virtue of this receptacle is, that the bees could have abundance of room for working in it. The bee had done his part, and brought to this "bucket-shop" of nature's choicest sweets, but the bee-keeper had deteriorated the honey just one-half its original worth by giving the bee an improper package in which to work. We suppose that he, with others, thought that Kansas City was such a "mushroom-opolis" of a market that, no matter what the quality of the honey might be, or the style of the package in which the honey was shipped, it would still command as high a price as his neighbor's honey which was shipped in a proper package. Let him take a lesson from the busy bee, and prepare his packages as thoroughly as the little insect worker makes his cells, and the honey will retain its natural flavor.

In regard to next season's crop, we have no direct information, except from California, which State promises a yield worthy the searchers after the Golden Fleece. This State has been blessed with an abundance of rain this season, which has made the valleys and hillsides bloom like the rose. A profusion of wild flowers encarpets the low grounds, while the mountain-sides are draped with an extraordinary growth of the white sage, which shrub constitutes three-fourths of the bees' supply. While those active insect-workers are improving each shining hour, let us put in our time with honest endeavors, both to preserve in perfection all the native qualities of this delightful product of dame Nature's delicate art, and to improve all the facilities for putting it in easy reach of the consumer.

CLEMONS, CLOON & CO.

Kansas City, Mo., May, 1886.

Friends C., C. & Co., we pronounce the above tiptop, and we take pleasure in laying it before our readers, even if it does savor a little of advertising your house. Our readers will find the package you recommend for shipping extracted honey, illustrated and described on page 274, April 1.

THE MATTER OF DISPOSING OF SEWAGE.

SOME SUGGESTIONS FROM ONE OF OUR ENGLISH FRIENDS, IN REGARD TO THE WAY THEY MANAGE IT.

I SEE in GLEANINGS that you ask your readers to let you hear what they know about the disposal of sewage. In England we have: 1. The earth system; 2. The precipitation system; 3. The water system.

The first of these is most applicable to country places: we have several in our small village. Instead of a wheelbarrow we use a tin pail and ashes, or dried earth, which the owner removes as suits him. The second system is mixing the sewage with chemicals in tanks. The water is discharged apparently clear, and the residue is mixed scavenger's refuse, which has been passed through a riddle, and the larger matter calcined. The third system is the flooding of land with sewage by gravitation or pumping. Cheltenham, a town of 42,000 inhabitants (10 miles from here) sends the whole of the sewage water to a distance of about 3 miles, over a face of 131 square miles. The houses, some 8000 in number, are generally provided with water-closets; it is conveyed, first, to tanks 44 yards by 10 yards by eight feet deep, in which, by a certain rough filtration, it is separated from its heavier mud, and the remainder flows onward to the land. The overflow is made to drive a turbine, by which the sludge is lifted above the level of the ground close by, where the house-ash, with other town refuse, wheeled by the scavenger-cart, is placed so as to receive it, and is doled out to the farmers at about 2 shillings per yard. Few of the sewage farms pay, I have heard, and then only on very light land.

I suppose you have heard we have had a long and bad winter for bees, and I hear of a good many losses. I believe we have over 10,000 bee-keepers, and our honey was down to 7 @ 8 pence, best comb.

ARTHUR W. LEATHAM.

Misarden, Cirencester, Eng., March 9, 1886.

Thanks, friend L. Since my articles on the subject quite a number of very ingenious plans have been submitted to me. Perhaps the best one in use, especially in large public buildings, is the plan adopted in the schools of Toledo, Ohio, and several other places. This plan is somewhat as follows: The buildings are warmed by hot air. The hot air, after having performed its office, is carried down beneath the water-closets (which in this case are closets without water), and this great volume of dried air is sufficient to take up and absorb all the moisture contained, so that the accumulations of several weeks, from a large school, may be carried away on a common wheelbarrow. This foul air, charged with dampness and gases, is set free from the top of a large shaft, or chimney, which carries it up so high in the air that its presence is never noticed in the neighborhood. I do not know just how the arrangement works in the summer time. Probably sufficient heat is maintained to keep the current of air passing up the large chimney. For towns and rural districts. I am inclined to think, however, that the plan I suggested is the cheapest and safest, especially when the owner of the premises has a little plat for plants and fruit.

DO BEES HEAR?

OR DO THEY FEEL THE VIBRATIONS?

ON page 305, Ernest says that queens do not "zeep, zeep," for their own pleasure. Why not? If a queen is "chock full" of happiness, what is to hinder her letting off a little of the pressure in the shape of an audible "zeep, zeep"? or if she is in a strange place, expecting every moment to be her last, with her heart rising up in her throat, as it were, wouldn't it relieve the nervous pressure, and perhaps save her life, to let off the "zeep, zeep"? Once I knew a boy. He was a bad boy. He went to a Fourth-of-July celebration, and he would climb trees. His mother and his two aunts and three sisters spent all the forenoon pulling him down by the feet; but while they were eating dinner he slipped away and climbed a tree, fell out of it, and broke his arm. The doctor came and set it then and there, the boy yelling, one heart-piercing yell after another, all the time. The women - folks promised him candy and peanuts, lemonade, and ice-cream if he would only hush; but the doctor said, "Let him yell all he wants to. It's good for him—relieves the nervous pressure." The boy was scared, all broken up, and the explosive sounds from his lungs eased him off and he soon went to sleep.

If bees feel things, vibrations of the air, and understand them, perhaps the zeep, zeep, causes a vibration that they feel and understand.

Years ago, on the last day of school we had a picnic. All the children, with baskets and buckets and bouquets, marched out to the woods to eat dinner. Among the children, laughing and running, was a deaf girl; she could not hear the least sound; but in addition to her laugh she uttered a shrill sound that sounded more like a horse in pain than any thing I can think of. She was having a splendid time; but the sound she made from time to time did not tell the story. Another time, on our way home from church we stopped a few minutes when she and her sisters were swinging; and while we talked with one sister the other swung the deaf girl; and each time, as the swing went up, the deaf girl uttered that piercing sound; this time it was fear, but it had exactly the same sound as her notes of gladness at the picnic. It puzzled me, that the sound to express joy and that for fear should be the same, and I resolved to find out if all deaf persons make the same sounds, but have never had opportunity to do so. This girl afterward married, and lived within about 20 rods of the railroad. She had two little girls, and they were always playing about, sometimes on the railroad. I worried over the matter for years, and often thought I would stop and ask her to watch the children, but I was not very well acquainted. Finally I did ask her if she was not afraid to let the children play on the railroad.

"No," said she, "I always know when the train is coming—I feel it, and I look out for them." She was not born deaf and dumb, but lost her hearing from scarlet fever when about a year old, before she had learned to talk.

As to the queen piping to call out the swarm, I thought we were taught that the queen did not manage the swarming; and if her piping means joy or fright, perhaps she felt the excitement that was all through the hive, and gave voice to it. Who knows? MAHALA B. CHADDOCK.

Vermont, Illinois.

Mrs. C., you have certainly given us some new ideas on the subject, and there is no doubt but that you are right. The deaf girl knew how to utter only one sound, so she used that sound on all occasions. She was something like the amateur fiddler, who explained to his audience that he knew only one tune, and therefore he always played that first. Strange, wasn't it? Well, now, may be it is the same way with the queen and her "zeep, zeep, zeep."

DO BEES HEAR? — SOMETHING FURTHER.

You say that bees can hear a queen if she is on a frame held at some distance from a frame with other bees. Can they hear if one frame is on the ground, and the other in your hand? or do they, when they make a piping, jar the comb enough so it will telephone the jar to the other bees? I tried it in this way: I fed them a teaspoonful of honey at the entrance every night this spring; at the same time I hit the spoon on the bottom-board (mine are portico hives), and they always came out at the signal, and it would start them buzzing if I rubbed my finger lightly on the hive. I then took a bell and rang it when I fed. I practiced this with my 40 colonies every night for some time, always hitting the hive in some way before they would start. Now, if they hear, why wouldn't they take the bell as a signal without my first jarring them? J. L. HYDE.

Pomfret Landing, Conn., May 10, 1886.

STARTING BEES INTO SECTIONS.

CAN HYBRIDS BE HANDLED AS EASILY AS ITALIANS, IF MANAGED RIGHTLY?

A BEE-KEEPER said to me last spring, "Why do you let your bees swarm, if you want honey and not an increase?"

I answered, "If I knew how to prevent it I would never have them swarm."

He answered, "Keep them busy—too busy to swarm."

I took the frames out last season as soon as they were filled. I had one swarm. This season I have not had a swarm so far. Six colonies are just filling sections right along, as fast as I ever saw them filled. I had some trouble to get two colonies to go up into the sections, but I put a frame of brood in the upper story, and they commenced next day to store in those next to the brood. Now they are all six at it.

I have seen so much about cross hybrids, that from the first I anticipated much trouble with them. I have never had a cross colony. I do not know why; but I often go through a hive, lifting out every frame, and never use a smoker. Sometimes they show a little disposition to fight; but a puff or so of smoke subdues them. I have never owned a cross colony. Can you tell why? You said, some time back, that in the fall, when honey was scarce, they would fight fearfully. Last fall I had to examine them to find out if they had enough to winter on. I took from some and supplied others, and they were as quiet as at any other time. Once my little boy set a frame of unsealed honey down that I had given him to take into the house, and they commenced to rob; but I closed every entrance so as to admit only about one bee at a time, and next day things were as quiet as usual.

JEHU G. POSTELL.

Orangeburg, Orangeburg Co., S. C., May 7, 1886.

I am inclined to think, friend P., that you may not always be as successful as you have been in having gentle bees, although very much depends on the way bees are handled. If you do not get hold of a colony pretty soon that takes the conceit out of you, then I shall be somewhat mistaken, especially if you run your numbers up into the forties and fifties.

SOMETHING FROM OUR GOOD FRIEND CYULA LINSWIK.

HOW HER BEES WINTERED THIS YEAR.

"FOR he on honey-dew hath fed,
And drunk the milk of Paradise."

These lines from Coleridge, slightly changed, as thus—

Since they on honey-dew have fed,
They sip the sweets of Paradise,

We have chosen as an appropriate and suggestive epitaph for eighteen colonies of Italian bees now sporting in the Elysian fields. They died during the past winter and spring; each snugly packed in chaff on its summer stand. Forty-four colonies remain to us. A large majority of these are good; the remainder considerably below the average standard for this locality at this date, May 10.

Intimations in late numbers of GLEANINGS, that the wintering problem is growing unseasonable, forbid my telling the story in detail, impossible as it might be to refrain from adding thereto inference, speculation, and opinion. But we have received, in days past, too much credit for our success with outdoor wintering—shall I say our good fortune, rather?—to avoid this brief public confession of failure.

We doubt not that the friends with whom we oft have mourned will rejoice to sympathize with us. Nor will any one of them, surely, be cruel enough to say, "I told you so!" CYULA LINSWIK.

Very likely the honey-dew which the poets wrote about in olden time was different from the kind we have nowadays, friend Cyula; or perhaps they didn't have any honey-dew at all, and talked about something nobody knew any thing about, as we sometimes do, even in this latter age.—Now, I am not glad that you and your sister have had a little experience in winter losses, but I am glad that you come out so promptly and own up. I have sometimes been forced to conclude that it was more good fortune than good management; but you see you did not feed them on sugar syrup. May be, now, you will be more ready to agree with friend Heddon and myself.—It is true we have been obliged to pass by a good many reports in regard to wintering; but we have never felt like passing by any thing from you or your sister, therefore we want you to remember that there are exceptions to this rule as well as to almost all rules; and when you feel *prompted* to write any thing, don't repress the inclination, but let us have it.

A STRANGE FACT IN REGARD TO QUEEN-BEES.

A FACT THAT IS ALSO OF CONSIDERABLE IMPORTANCE.

I WONDER if others have queens faint away and come to again, as some of ours have done. Last summer, in looking for a queen we could not find her in the hive; but when about closing up I saw her lying quietly on the alighting-board, where some of the combs had been set. I picked her up in my hand, and she appeared dead—no life at all. My first thought was of tossing her away; but the next thought was to drop her in the hive among the bees. I did so, and in a week I examined the hive and she was laying all right, but showed signs of a little weakness. She was a young queen, fertile only ten days or so, but she has not kept her hive so well filled with brood as some others, and now she is but one year old. I think I shall give the colony a more vigorous queen.

About five years ago, on looking through a hive for a queen I could not find her. I looked on the bottom-board, and there she was, apparently dead. I took her up in my hand; and as I wanted to save a dead queen to show to visitors, I told the attendant to lay her on a big box a rod away, until I went into the house. What was my astonishment, when, on going for my dead queen, to find her surrounded with two or three dozen of her own bees (I suppose), all doing homage to her, their heads mostly all turned toward her, and caressing her with their antennæ. I put her back in the hive and she was, to all appearance, a well queen for a year or more.

Again, in swarming time my wife caught a queen in a cage with a few bees, and laid them in the sun, intending to take care of her soon, but forgot her for two hours or so; when found she was apparently dead. I placed her in a hive, and she revived and lived to do good service.

One fall, after uniting several nuclei, we forgot a queen and a few bees we had hunted out and did not care to save, but disliked to kill her, so we put her in a cage and laid it on the ground, intending to put her on top of brood-frames in some colony, thinking possibly we might find a hive queenless. She lay out all that night; we had a hard white frost, and next morning I found that she and all the bees would shake round in the cage as if dead. I put the cage on top of a colony of bees for a day or so, and on going to it all were as lively, apparently, as if nothing had happened.

Our bees have wintered very finely indeed; those outdoors are at this date at least one-third stronger than those wintered in the cellar. All were packed in straw, but they were one-third stronger and better colonies last fall. We had several nuclei quite weak last fall. We crowded the bees on to two well-filled combs, and packed with straw all around, and put in the cellar. They all wintered, and to-day bid fair to make fine colonies in a month or so.

The spring seems very forward. Apple-trees bloomed two weeks or more earlier than last year.

I think Mr. Heddon's book well worth the money. There are some very practical suggestions in it. I disagree with him, however, in regard to women and invalids keeping bees. I think a few colonies just the right stimulus for invalids—better than alcohol or wine; and as for ladies, I wonder how many successful men there are in the business without the help and co-operation of some woman, either wife, daughter, or sister. L. C. AXTELL.

Roseville, Ill., May 12, 1886.

Friend A., you may remember this subject has been up before. From your description I should think you had met with suspended animation, occurring from two or more causes. My first experience in the matter was when buying queens some years ago of a neighbor. All of a sudden a queen we had caught doubled herself up as if she had been stung, and was apparently lifeless. I thought her dead, but he said he had often seen them do that, and that she would come out all right if we would put her among the bees and let her alone. Sure enough, when the hive was opened, an hour afterward, she seemed as well and natural as ever. I have since seen it several times, especially when picking queens off from the combs to send them away; they seem knotted up as if in a cramp, and I doubt not that many queens have been thrown away for dead when it was only this feature of suspended animation. The case you mention, where queens were found on the bottom of the hive, can not be so easily explained. I had supposed it was caused only by fright or improper handling. I have often seen queens and bees, apparently dead in their cages, from the effects of cold, and nothing else. I have also seen queens, when left away from the bees, frozen until the frost was plainly visible on their bodies; but in every case where they revived when warmed up, they laid worker-eggs just as well as usual, so far as we could see.—I agree with you in your concluding remarks in regard to bee-keeping for women.

LAWNS AND LAWN-MAKING.

SOME PRACTICAL EXPERIENCE IN THE MATTER FROM FRIEND TERRY, THE POTATO-MAN.

FRIEND ROOT:—You did a nice thing when you hunted up a simple, cheap lawn-mower to sell to your readers. I have no doubt there will be more pretty lawns where GLEANINGS goes, as the result. And what is more beautiful than a smooth green lawn? Why do we not see more of them in the country? It is not a very difficult matter to grade the ground and sow the seed; nor is it a hard job to run the lawn-mower over the yard once a week or so. Any man with half an eye for beauty would feel amply paid for the trouble, by the beautiful, even coat of green that would result. And then it is so nice for the wife and daughters, when they hang out the clothes, on washing-day, or when they are tending to their flower-beds.

Possibly the writer's experience might help some who are thinking about a lawn. Our yard was very uneven and rough when we came here—an old farm-yard. We did not attempt to make a lawn until we had a new house built, as the digging of a new cellar would spoil it all; but we set out trees, hedges, etc., with reference to future grading. A year ago this spring we began on the yard by spading it all over deeply. Then, every few days, all summer, we went over it with the Acme harrow, and hoed around the trees where we couldn't get with the harrow. Where there were hollows we drew in dirt, and where it was too high we took off a little. In this way by fall we had it pretty well graded, and the horseradish, tansy, and numerous other such plants as those found in all old farmyards, thoroughly disposed of. About the last of August we fixed it up as smooth and nice as possible, and sowed on blue-grass seed and timothy, some four or five times as much as we would on the same amount of ground in the field. Then we rolled it by hand with a part of our field-roller fixed up for the occasion. Next, boards were laid down to walk on, where we were intending to have paths in the future. No manure was used, although some fine rotten compost would have been an advantage; but we did not have any. The seed came up finely, and the lawn was quite green by winter. We let it grow this spring until it was, the best of it, some eight inches high. Then we mowed it over with a scythe, and, after the next rain, rolled it, and soon began using the little lawn-mower we got of you. We have been over it twice already (May 20), and have got a pretty fair-looking lawn, for a young one. It will probably be best not to cut it very much more this first season, unless it is very wet. At all events, it should be allowed to grow up in the fall. Of course, the most of the show now comes from the timothy; but the blue grass is growing, and will make a heavy sod in time, and displace the timothy. No such lawn could have been got the first season from the blue grass alone, although in time that will be all that is needed to make a splendid turf.

Lately we have been making roads and paths; for one good thing, you see, leads to another. We took the boards all up that we had been walking on during the winter, and cut out about five inches of soil, and then drew in gravel and filled up. Of course, some pains were taken to lay out the road and paths so as not to have them look stiff, and so they would be as convenient as possible. It took about 80 tons of gravel, and was quite a job; but it is a permanent improvement, and it did not cost a cent, only a little hard work when we could spare the time from our regular farm duties. We can drive into the yard and by the coal-window, and the wood-shed door, and the cellar-door, and also the cellar-window, where we put in potatoes in bulk, and on out of the yard, and not have a horse step off from the gravel road. When our new barn is built, the road will be extended to that, and then we shall be out of the mud, as we intend to cover the barn-yard.

Now, friend Root, you ought to get a heavy lawn-roller to sell us, to keep the road and the walks and lawn rolled down smooth. There are some other matters pertaining to the territory inside of the dooryard fence that I should like to write to you about at a future time, but meanwhile I hope many readers of GLEANINGS will invest a little *work* in their dooryards in the way of lawns and dry walks.

Hudson, Ohio. T. B. TERRY.

Very good, friend T. But when I get a lawn-roller, something else will come up, and where will the end be of the things I keep for sale? A good roller would be a pretty heavy thing to ship. One of the best I have ever seen was cut out at the stone-quarries, like a small grindstone, for it was about 2½ feet thick. With a suitable frame, one horse would draw it nicely between rows of vegetables, or anywhere else you wanted lumps mashed up or ground compressed. After setting out celery-plants, it was an excellent thing to pack the dirt around the young plants; but it was so heavy that, if you didn't look out, on a steep side hill it might throw the horse over. Ours was burned at the time our warehouse was destroyed. I presume many of the friends could have them made at the stone-quarries near them. I suppose the next best thing would be a cast-iron one. I am told the stone ones can be had at the quarries, where grindstones are made, for about $2.50 for the roller alone. By all means give us something more in regard to the territory inside of the dooryard fence. If it is true, that, "as the twig is bent the tree's inclined," how much may so simple a thing as the dooryard have to do in shaping the future lives of our boys and girls!

APIS INDICA.

Their Good and Bad Traits, Carefully Considered by our old Friend Bunker.

THE TERRIBLE RAVAGES OF MOTH.

I HAVE now experimented with *A. Indica* one full year, and report. If profit in honey and wax had been our aim, you would have to put us in "Blasted Hopes" in short order, surely; but as knowledge of this new race of bees has been our aim, we are safe for this year. Experiments were begun in October last year, when our first swarm was secured. By natural increase, and by addition of wild swarms from time to time, our number of swarms increased to nine in August last. Two swarms are now left, and one of these has swarmed out twice; but now, however, it seems to be inclined to remain with us. The first of these two is very large. There must be a full peck measure of bees. It is a swarm from a domesticated wild swarm. The other seven swarms have all taken wing for the woods, together with several first casts, which we failed to secure, either because they did not alight before leaving for the jungle, or other reasons.

I will not weary you with daily or monthly reports, but will give you results as briefly as possible.

1. The reason why these swarms have left (others than natural casts), seems to be wholly due to moths. When the hot weather of the rains began, I noticed signs of moths, as given in the A B C. I found old combs being torn down by the bees, and worms on the bottom-board. This board was carefully swept every few days, and worms killed. Occasionally I found them under the cloth on the frames, and from these evidences I was persuaded that the bees were making a good fight of it, and would be able to take care of themselves; and as some of the combs being torn down had brood, I delayed removing them; also being very busy with my mission duties I did not examine all the combs as I should have done. As a result, the bees began to swarm out; and on looking over the combs I found them full of worms. One large swarm, from some reason, hastened queen-rearing, and, without waiting for drones, swarmed twice, and finally the whole left. One of these swarms was captured and kept for a little while with what I thought to be a clean frame of brood; but as soon as the brood was hatched out, the bees left, and I found moths in their comb.

Now the war began, myself and bees on one side, and the moths on the other, and the moths won the day. I followed up each hive and gradually withdrew all comb showing moths; but I was not fast enough, and swarm after swarm absconded. I found that every place where there was a collection of wax from fastening the combs in transferring, there was a nest of moths, and that the moth-worms had even burrowed into the pine wood, and thus were safe from the bees. These worms multiplied with great rapidity, and ate their way rapidly through the combs, covering their tunnels with a strong web. But in no case did they trouble *new* comb. They seemed to be after the cocoons left by the hatching of young bees, and not for wax alone. I conclude, therefore, that my mistake was in not cutting out all old comb at the beginning of the rains. Again, as the *A. Indica* deposits *no propolis whatever*, the hives must be made carefully, and the frames for comb should be of such material that moth-worms can not eat into it.

2. Besides the moth as an enemy, there are others also destructive, as a variety of lizards, from two to six inches long, house frogs, small sparrows, and ants. The smaller lizards seem to be privileged characters. I have seen them dash through a squad of fanning bees, into the hive, without a sting. Cockroaches are often found in the hives, and I have seen them run down on the combs, and the bees only make way for them.

3. These bees are not large comb-builders or honey-gatherers. Under the most favorable circumstances, 30 lbs. of honey a year from a swarm would be a rare event. They seem to bend their energies on brood-rearing, and make comb for that purpose, and not for storing honey. I do not think they can be led to take to supers at all. If supers with full combs were supplied a swarm, they might be induced to store honey in them during the best season, but they will not build comb for storage. Their enemies are so many, and the moth so destructive, they strive to raise as much brood as possible through the breeding season, and then leave for new homes, and begin anew.

4. Hence the bee-year is divided into two seasons, like the climate—first, from December to June, and from June to December, six months each. Only in rare cases will the bees occupy the same home the year round, in their natural state. Even if their combs are free from moth, it seems to have become natural for this bee to swarm out at the end of each bee-season and seek a new home. With knowledge and care this tendency can be wholly overcome, I believe. From books about bees in cold coun-

tries, I was led to suppose that here, also, old combs would be desirable as a saving in bee labor; but combs more than six months old, even if not attacked by moths, become brittle, and the bees do not like them. Old combs introduced into the center of full swarms, though perfect, are often shunned by the queen, and used, if at all, for storing honey. So, then, we conclude that *A. Indica* is very particular, and likes only new houses; and, rather than live in an old one, will take to camping out.

One swarm, which I had succeeded in keeping the year round, and from which I got 8 lbs. of honey, finally became so dissatisfied that they swarmed out and left the queen, whose wings had been clipped six months before, on the alighting-board; and though they clustered a few rods away, they would not come back. They could not have had another queen, as they had neither queen-cells nor drones in the hive.

5. Although there are shrubs and trees in bloom all the year round, yet the honey-season seems to be from February to July inclusive. It seems that bees migrate in the midst of the honey-season, which appears to be the fact. From February to the last of May is decidedly the best of the season. As the time for migrating approaches, the queen ceases to lay eggs; and when the brood is hatched the honey is consumed, and the bees seek a new home, and set about a new house with much energy. In thus migrating during the honey-season, the bees secure a new home and supplies for the next six months. At the beginning of the rains the swarms are very large for this bee; but at the time of migrating, in December, they are much reduced. It must be noted as a curious fact, that, after spending one season away, they will often very regularly return to their old quarters, so that certain "bee-trees" come to have value as a matter of property among the natives, on account of this curious fact.

6. In experience, many queens are lost on their wedding-flight. Scores of sparrows are watching for them; and as their flight is heavy, they are easily caught. In uniting bees, for instance a swarm without a queen with a swarm having a queen, care must be taken, or the queen will soon be found dead outside, though otherwise they dwell together peaceably enough. I united two queenless swarms once, proposing to give them eggs to make a queen for themselves, and they lived together several days very peaceably and then swarmed out, one swarm taking the right and the other the left road to new quarters. Fertile workers are met with here as among European bees. One queenless swarm tried to make a queen of a drone.

7. These bees are extremely gentle. They will seldom attack, save when the hive is full of honey and brood, and then a puff of smoke is quite enough to send them on their knees. They fly about, alighting on the face and hands, with a plaintive buzz, which says very plainly, "Please," and we understand the rest they would say if they could speak. How clearly they say "come" to each other, when they find a new hive, or the swarm from which they have been separated! Speaking of their gentle disposition, I have often watched a squad of these bees make a combined attack on a big green fly, which often persistently troubles them. By a rush they rout the fly, yet he soon returns and settles near some bee, who quickly takes to her heels, as if a terrible enemy had come. They very readily run off the combs on to the top-bar or hands, in handling; though if the hands be smoked a little first they shun them. Notwithstanding their gentleness they are great free-booters and attack each others' hives mercilessly. In these battles they soon cover the ground about the hives with the dead.

8. They will not run into a hive when poured down in front of it, but take flight. They take possession of a hive when one wants them to, very reluctantly; but a bit of brood, sealed or unsealed, fixes them at once. If handled too much, the queen stops laying, and after the brood is all hatched the swarm absconds.

The above are some of the results of a year's study of these bees, the *A. Indica*. A second year's study and experimenting is likely to modify some of the above observations. Only after repeated experiments will it be wise to lay down rules. These bees are not likely to become profitable property, though one can not say what will be the result, if crossed with other breeds. There are at least three species of *A. Indica*. Their relative merits we can not yet pronounce upon. Further experiment is necessary.

Toungoo, Burmah, Dec. 1, 1885. A. BUNKER.

A LITTLE ADVICE TO LOCAL SUPPLY-DEALERS.

LACK OF JUDGMENT VERSUS WILLFUL DISHONESTY.

THERE are but few who realize how easy it is, in the course of circumstances, for a perfectly honest man to start out with nothing but honest intentions, and in a short space of time be condemned as a dishonest man. These few lines are directed mainly to bee keepers, still they will apply to many other branches of business. Bee culture of our day, under its great progress, requires, to carry it on profitably, many implements and supplies, not easily manufactured on a small scale in every bee-keeper's home. For this reason it becomes necessary that there be manufacturing establishments where such goods as are required by bee-keepers can be made. Now, the bee-keepers are so thinly scattered over our great country that such establishments are necessarily situated some distance apart. This has caused heavy expense in expressing small amounts of goods great distances, and it is this very thing that has led to the trouble I am about to speak of.

In almost all localities there is some one more interested than others who reads up, sends and gets foundation, sections, smokers, etc., transfers his hives, and commences the business under modern management. His more backward neighbors begin to get interested, and, of course, look to him for assistance. They want him to send for supplies for them; and, partly to accommodate and partly that he can add this supply department to his business, he at once applies to some supply-dealer for terms to sell again; and, as all supply-dealers know, these applications come, not by tens, but hundreds. He gets rates which give him a fair profit, by having his goods shipped by freight in quantities. He has no hundreds of dollars to put into the business, but is an honest man, and the dealer gives him credit. He commences selling to his friends and acquaintances; he has got credit, so he sells to his friends, and gives them credit. Time passes on. He perhaps takes one-third cash, and turns that in; the season ends; he is notified by the dealer to pay up, for he wishes to prepare for another season's trade. He begins to try to collect, and, to his surprise, is very much disappointed; he finds it harder to collect these little bills than he expected. He finally looks the matter squarely in the face, and at once decides these bills must be collected, for he has no other way to pay; so he sets himself about it, gets many of his friends mad at him, and at last finds himself with a large bill against him, unable to pay it, his credit gone, his honesty condemned, all because his friends thought he could wait on them; that he had no occasion to press them for the few dollars they owed him. So it turns the man, started with nothing but the purest of motives, but at last he is held up as dishonest.

Now, my friends, this picture is not overdrawn, as not a few can testify. Much the best way is to pay as you go, and be happy; for then one's mind is free and easy; but on no account buy goods unless you know where the pay is coming from; and never buy goods on credit to sell on credit again; in other words, never trust out another man's property.
J. B. MASON.

Mechanic Falls, Me.

Friend M., your picture is a truthful one, I grant; but it applies to other kinds of business as well as to the supply-business in bees, etc. Whoever commences in business of any kind should remember that he is assuming responsibilities; and when he begins to trust out the stuff, whether he pays cash or buys on time, he is assuming heavy responsibilities. If he is inexperienced, by all means his better way would be to do a cash business, as you recommend. As he gains, by experience, knowledge of men and things, he can begin to accommodate men who are universally recognized to be safe. There are a good many reasons why it is convenient to have accounts with good customers. It is a great saving of freight by getting some goods, oftentimes, before you really want them, because then you can have your goods all come together. Another thing, it is inconvenient to remit small sums; and where one has a credit he can order by postal card with much less trouble than where he has to send the exact sum of money every time. Now, then, comes the point of deciding whom he can trust and whom he can not trust. I have found this a very good rule: Grant credit for small amounts to those whom you have every reason to believe are able and willing to do all they agree to do; but just as soon as you find a man who says, "I can not pay now, and you have got to wait," square up with him as quickly as you can, without making unnecessary trouble, and then tell him plainly but kindly that you can not give him more credit. Where a man writes first, and asks if you can possibly give him a little more time, mark him on your books as all right, and worthy of confidence; but those who take time, whether you grant the privilege or not, are not entitled to credit, in my opinion. In this way you teach those with whom you have deal to carefully guard their reputation and business standing. Any one who takes offense because you think best to refuse credit, has shown himself by this act to be unworthy of credit. It is every man's privilege to demand cash for his goods or produce, if he chooses to, and no *good* man will be offended if he chooses to exercise this privilege. A great many beginners in the supply-business get into trouble because they push ahead heedlessly; and such people will get into trouble in any kind of business if they succeed in getting credit at all.

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VIALLON'S PLAN OF SECURING SURPLUS HONEY IN 1-LB. SECTIONS.

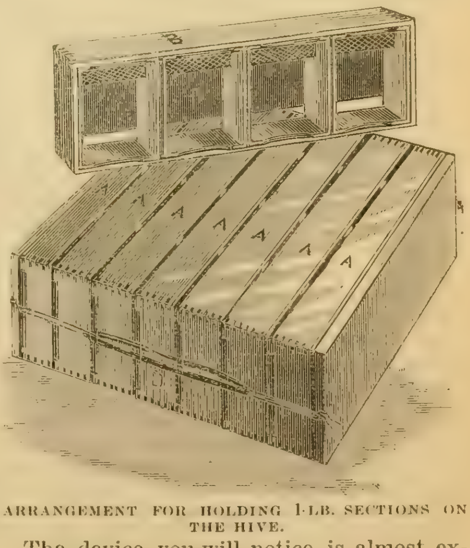
SOMETHING WHICH HE CALLS THE DOOLITTLE SURPLUS ARRANGEMENT.

THERE seems to be no end to the plans and devices suggested and used for holding sections with separators so as to place them on the hive without much trouble, and still have them convenient of access, and convenient to ship. Friend Viallon writes as follows:

We use for comb honey 7 wide frames clamped together as per Doolittle's plan (see *A. B. J.*, March 10, 1886, page 149), open top and bottom, dovetailed at corners, holding 4 Simplicity sections and separators clamped together with the thin outside boards. I have corresponded with friend Doolittle about it, and have agreed to call it the Doolittle surplus arrangement for comb honey. I have used such a frame with better results and more satisfaction than the two tiers of wide frames; as these have no projections to hang on rabbets, I lay the 7 frames, when clamped, on a perforated zinc board, and put a regular top story of Simplicity hive over. Two or more tiers of these frames can be used, if necessary. These wide frames are made a trifle over 1⅞, so that they when clamped press all the sections together, and, when placed on the perforated zinc, no bees can pass outside of these frames, etc. I intend to advertise and manufacture these in preference to any other.
P. L. VIALLON.

Bayou Goula, La., May 1, 1886.

We submit an engraving of the surplus arrangement, as figured below.



ARRANGEMENT FOR HOLDING 1-LB. SECTIONS ON THE HIVE.

The device, you will notice, is almost exactly, if not quite, the same as our three-box case, which we have advertised so many years. To fasten these together, friend Viallon uses a couple of wires with a stout rubber cord to draw the side-boards close together, and to keep every thing tight. Such an arrangement works nicely on hives, but it is not practicable to use it for shipping honey to markets. For home use, however, it seems to answer every purpose.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

OILED CLOTH IN PLACE OF GLASS, FOR HOT-BED SASHES, ETC.

IN reading GLEANINGS for Feb. 15, 1886, pages 141 and 142, etc., I should like to say that Mr. Henderson's ideas of using cloth well oiled, in place of glassed sash, is *good*. I have practiced it for years. I make a frame, something as you do, to put in glass, but tightly draw the cloth across and tack down close. These handle nicely. I alternate these with glassed sashes, every other section (or sash) being cloth. They can be changed occasionally, placing the cloth sashes over where the glass sashes have been, and vice versa.

Like you, this sort of work fascinates me, and truly it's a great pleasure to watch your plants, which seem to grow under your eye, while all is cold beneath, and desolate outside. Another thing, we must realize that it is profitable as well. I have watched you all through this "hobby of yours;" have seen you err, and smiled, but knew you would eventually "get there," and I must truthfully say you are fast doing so now, to judge from your writings. Long may you live to enjoy the "new horticulture, etc.," is my prayer. R. C. TAYLOR
(Formerly of Wilmington, N. C.).
Fort Scott, Kan., April 8, 1886.

WHAT MADE THE BEES SWARM SO?

Can you tell me what ails my bees? My first swarm came out March 7. I hived them in a new Simplicity hive, which they seemed to like very well; but after remaining two days they swarmed out; and as the queen was not able to fly I caught her and put her back in the parent hive where the bees all went. Next day they all swarmed again, and I hived them in a new Simplicity; but not the one I put them in first. They remained in that three days, and swarmed out again, and took French leave. My next swarm, a week later, acted a good deal the same way, only they left the same day, after being hived twice. The third swarm, which was about a week later still, went off without being hived at all, and I have had no swarms since, though I have 20 colonies, all apparently in good condition. Now, as I know but little about bees, will you be so kind as to tell me the cause of their acting in that strange way? Bees seem to be gathering some honey now from the rattan and grape blooms. I sowed my buckwheat April 20, and I see some blossoms on it to-day, just twenty days from the time of planting. J. W. THOMAS.
Tehuacana, Texas, May 10, 1886.

I think, friend T., that your bees had a sort of swarming mania. Sometimes it seems to run in a particular strain of bees. They get swarming on the brain, and they swarm anyhow, no matter how you fix them, nor what sort of a hive they are put in. I should assuredly have given them the frame of unsealed brood, recommended so much. If you have any more such work, suppose you try it.

ARE YOUNG BEES OF THE BLACK RACE SUBJECT TO CHANGE IN COLOR?

I have four stands of the native, or wild bees; they have a hazel-colored body, and are black at the extremity of the abdomen. On the 14th of April I hived a swarm and noticed that there was a part of the bees of an orange color. Thinking they were young ones, I did not take notice of them so much; but as they continue the same color yet, I should like some one to explain, if possible, the cause of said change, as none of my old bees are so.
Blackville, S. C., April 20, 1886. D. D. SLATER.

Young bees of any race are lighter in color, because of the peculiar down, or fur, that covers their bodies. As they get older this fur gets soiled, or wears off, and they look dark, or sometimes almost black, when contrasted with the young bees that are for the first time taking wing. I do not know of any other way in which bees change color.

IS BEE-STING POISON GOOD FOR CROUP?

I see you publish what honey is good for to restore health. I will just say for your readers that 2, 3, 4, 5, or 6 honey-bees, or 1, 2, 3, or 4 bumble-bees (according to age of patient) steeped in water, say about ½ to 1 oz., and sweeten to be palatable, is almost an infallible cure for croup, and produces a pleasant sensation in the throat or stomach instead, of the sickening sensation usually resulting from medicine given by doctors or our grandmothers for croup. It only needs to be tried by yourself or any one to fully appreciate its pleasant taste. This remedy is well worth any one's trial. I think the relief comes from the poison of the sting. I also know the same to be good for a cold on the lungs.
Memphis, Tenn. JAS. F. WRIGHT.

If the poison from the sting of the bees were in sufficient quantity, it would probably produce sickness at the stomach, just as lobelia and other similar drugs do; and this would, without question, relieve the croup. Why it should give relief to the croup, without producing any nausea, is something I can not answer. Very likely, however, it may act as a remedy. It is certainly sufficiently powerful to act instantly, and this is just what is wanted with so acute a disease as the croup. Mr. House told us, some time ago, about the number of sacks of bee-stings he was selling to the medical fraternity. Now, have these friends who buy the poison-sacks been aware of the curative properties of this remedy for croup and similar diseases?

WHAT AILS MY BEES?

My bees are dying with plenty of honey in hive. I am afraid they have some disease among them. Have you any remedy to prevent disease among bees? or what do you think is the matter with them? I have your A B C. T. W. MOORHEAD.
Fairview, Pa., May 10, 1886.

It is quite unusual for bees to die during the month of May, with honey in the hive. I can think of no explanation, unless it is that their stores are poisonous, for some reason or other. I do not know of any disease that would make the bees die at such a time and under such circumstances.

SUCCESS IN THE HILTON CHAFF HIVE; TROUT-RAISING.

My bees pulled through the winter in good shape —40 colonies in the Hilton hive, and 6 in other chaff hives. I did not lose a single one that was in the Hilton hive, but lost five out of the six in the other hives. For practicability and efficiency, Hilton's hive is hard to beat.—I have just turned off my first crop of trout, nearly 400 lbs. I obtained 50 cents per lb. Next year will be interesting, and I shall have ten times as many. I will say to friend Milton P. Peirce, that the temperature of the water has more to do with the quality of domestic trout than the food that is given them. W. D. French.

Grand Rapids, Mich., May 12, 1886.

PROSPECTS FOR BEE-KEEPING IN SAN DIEGO, CAL. "BUG SHEPHERDS."

I have come to California for my health; and being anxious to do something to keep busy, and make some money, I naturally think of bee-keeping, having kept bees in an amateur way in the east, where other business occupied most of my time.

I find, on looking over the business here, that there are fine opportunities in this county, and plenty of scope for improvement over the present system of bee-keeping in vogue here. All the comb honey here is in 2-lb. sections, and but little foundation is used; the top-bar of sections being three-cornered, the comb is usually pretty true.

Now, my object in writing you is to obtain your views concerning the proper size of brood-frames for lower part of hives in this climate, making the upper story adapted for 1-lb. sections. The thermometer seldom goes as low as 32°, at least in the country not over 25 miles from the coast. Some bee-keepers ("bug-shepherds" they are called here) talk of double or air-spaced hives; for in some places the thermometer reaches 110° in the shade, and one man told me that it would not answer to have the hives stand in the shade. I think that, if the bee-keepers here can be persuaded to use 1-lb. sections and fdn., there would be a fine opening for sale and manufacture of material here. F. P. Miles.

San Diego, California, March 25, 1886.

Friend M., the proper size of brood-frames you will find in our price list: and for a full discussion of frames and hives, see our A B C book. As we find the chaff hive much the best here in our climate for extremely hot weather, I think you would find the same thing, or something similar, just what you want in California. By all means put your hives in the shade during the hottest part of the day or the hottest part of the year. The shade of trees will generally best accomplish both purposes.

ABSCONDING IN FRUIT-BLOOM; WAS IT CAUSED BY THE ABSENCE OF A QUEEN?

Will some of you veteran bee-keepers please explain why this is? A neighbor of mine had a swarm of bees come off about the 10th of April. He followed them some distance until they settled; but before he could secure them they decamped. Now, as it was only the beginning of fruit-bloom, and no honey coming in, I tried to persuade him they were probably starved out. He said, "No, they left honey, but no brood." To convince myself he was not mistaken, I went and examined the stock, and found them as he had stated, and about a pint of bees, but no brood nor drones.

As far as heard from in this locality, the bees wintered nicely; hardly any loss. Mine all came through well, and to-day I had a swarm—the first one I ever knew so early in the season.

Oxford, O., May 3, 1886. John Coulter, Sr.

Friend C., the department headed "Absconding," in our A B C book, discusses fully cases similar to yours. Absconding during fruit-bloom is usually caused by scarcity of stores; but in the case you mention I should say the colony had been a long time queenless, and the remaining bees, doubtless comprehending the ruin that lay before them, absconded, thinking they could join some other swarm somewhere; or, perhaps, they left without knowing what they could do, thinking they couldn't make matters worse any way.

GOT THE BEE-FEVER BAD; WHAT IS THE REMEDY?

You prescribed the remedy, and now I call on you to prescribe the cure. But, hold! methinks I hear you ask what all this tirade is about. Well, let me explain. Two of our most successful farmers have thrown down the plow, and have taken up that terrible weapon, the bee-smoker, instead. One of our flourishing merchant princes has cracked the yard-stick, and has gone to flourishing the same weapon. One of the best mechanics in the neighborhood has got bees bad; and it is reported now that another of the best farmers in the community has got bees so bad that he is going to stop and let his plantation wash away while he goes into the bee-business. Now, Mr. Root, we have made a plain statement of that much of our grievous causes, but that is not all. You may go to the country store, and it is bees from daylight until dark. Go where you please, it is bees all day long; it's Doolittle, Root, A. I., Root, E., and Root, L. C., Heddon, J., T. J. and A. H. Newman, W. Z. Hutchinson, J. P. Israel, Novice, Vandervort, Vandeusen, Pelham, Given, etc., until we, the rest of the community, are afraid to leave home on account of hearing so much about the pesky little things. Now we will wind up as we began. As you saw fit to prescribe the noxious remedy, prescribe the cure. B.

Oak Lawn, Miss., April 26, 1886.

Thank you, friend B., for your graceful compliment. The remedy is to let all these friends put their talk into practical work. If they succeed in putting such nice honey in the stores and groceries that it goes off quickly at a paying price, why, you are all right—just let them go ahead. If, on the contrary, the talk bears fruit in the shape of blasted hopes and disappointment, why, that is the remedy, for no one will follow any thing very long that does not "pan out" so as to pay expenses.

IS SO MUCH CELLAR VENTILATION IN WINTER NECESSARY?

I carried 63 colonies into the cellar on the 5th day of Dec., 1885, and on the 9th day of Feb., 1886, I carried them out for a fly, and found three dead. Four days later I carried them back into the cellar, where they remained till the 13th day of April, when they were again placed on their summer stands. Inside of 2 hours they were carrying in natural pollen. I next lost 2 more by robbing, and sold one. The remaining 62 are in reasonably good shape. They are now very busy on fruit-bloom, and fairly *drop* on the alighting-board. My cellar is an up-ground one, 8 feet by 12 feet in the clear, 6 feet ceiling, and 12-inch walls, filled with dry sawdust, with about 18 inches over the ceiling. An accident occurred which satisfies me that bees do not need as much ventilation as is generally supposed. I have a six-inch tile sub-earth ventilator, and the accident is that the tile became completely stopped for at least 40 days, yet my bees suffered no unusual loss, and came out in good condition.

The two imported queens purchased of you in 1883 are yet doing good service, and are building up their colonies satisfactorily. May I add, I take great pleasure in perusing GLEANINGS? and while I do not indorse *all* of the doctrinal sentiments expressed in the Home Papers, I find enough to make them read and re-read, alone and in the family circle. ELIAS COLE, 68—63.

Ashley, Ohio, April 29, 1886.

Friend Cole, when the weather is very cold it makes but little difference whether your cellar is ventilated or not. Air will force itself through the cracks and crevices as fast as it is needed.

TAKING BEES BY THE DIPPERFUL.

I have never noticed in GLEANINGS or A B C book where any one hives bees as I do, which I think is a very good way where they settle as ours always have; i. e., on the branches of peach-trees, etc. I spread a sheet on the ground and set the hive on it, getting as near under the cluster as convenient. Take a dipper and dip off the lower part of the swarm, and pour them at the entrance of the hive, and they begin to run in as fast as they can. After that I jar the limb two or three times and the remaining bees follow in to the hive. We wintered our bees on summer stands. I think they will generally winter so here (south-west Missouri) if they are strong and have plenty of honey. Our section-box honey has received a great deal of praise, as it is quite a curiosity to a great many in our surrounding country. I do not think there are half a dozen bee-keepers in the county who use the L. hives or any thing similar, and very few keep bees, even in the old-fashioned box hive. I do not see why, when almost every one is fond of honey. We have hands sometimes who can eat ½ lb. at one time; but I have never heard of their trying to have bees at home. MAGGIE I. MIRES.

Houston, Mo., Apr. 13, 1886.

ANOTHER USE FOR THE CLARK SMOKER; HOW TO GET RID OF VERMIN BY THEIR USE.

I think I have something new to communicate to you. Still I have misgivings, as it seems nowadays that there is "nothing new under the sun." However, as I do not intend to get out a patent, even if it does prove to be a valuable acquisition, I shall not feel sorry.

Have you folks in the Buckeye State any gophers infesting your gardens? If you have, you know what they are. In this land flowing with milk and honey, we have them to our hearts' content; in fact, they are one of our worst pests. The only underground animal, or vermin, that is more destructive to the crops is the squirrel.

In neighborhoods where these animals are troublesome, the cultivators of the soil are bothered full sore in devising means to exterminate them. Cats, traps, poisons of various kinds, and other means, have been resorted to, all of which have proven slow and unsatisfactory. One of the latest devices for exterminating squirrels is an iron tube, or pipe, the lower end tapering to a point, while at the other end is a fire-chamber and bellows. With this arrangement, certain kinds of material, which produce a suffocating smoke, is burned, and, by means of the bellows, is driven or forced into the hole of the rodents. These vermin-smokers are, I believe, quite expensive.

Well, now for my patent (?). I have three makes of bee smokers, and the thought occurred to me that I could smoke out gophers and moles with some of them. While in the bee-yard a few days ago I discovered a gopher working; and having one of your cold-blast smokers fired up I went to the rodent's hole, inserted the nozzle till it made a tight fit, so that no smoke could escape, and then I proceeded to puff away. In a short time I found the smoke issuing from cracks and old holes all around me for ten or twelve feet away. I tamped these "leaks," and continued to drive the smoke into the hole so as to fill all the underground passages. Then I stopped the hole and left the rodent to suffocate. Your six-bit smokers take the cake for cheapness and effectiveness in smoking out gophers and moles, and I think they will do for squirrels and rabbits. You might get up a cheap one especially for this purpose. Make them and advertise them in the agricultural press. W. A. PRYAL.

North Temescal, Cal., May 7, 1886.

CAN A LINSEED-OIL BARREL BE CLEANSED SO IT WILL ANSWER FOR HONEY?

Can I cleanse a linseed-oil barrel so as to put in safe condition to hold and not injure extracted honey? W. M. JAMES.

Paris, Tenn., May 12, 1886.

Friend B., I should be a little afraid that the oil would taint the barrel, even if you do your best, although you might make the experiment on one barrel, and test the matter. Wash it thoroughly with soapsuds and ashes and water; then dry it in the sun, and drive up the hoops until it is as dry as a chip. Now coat it with beeswax, according to the plan given in the A B C book; and if you make the wax cover every part of the wood, and adhere to it so it won't scale off, I think there will be no danger of tainting the honey. The great danger is, you will not have the barrel thoroughly dry when the hot wax is put on, then the wax will cleave off, letting the honey come in contact with the oil-soaked wood, and this may give it a taint. In emptying barrels of honey I have seen the wax scale off from the wood in pieces as large as your hand, because some portion of the barrel was not thoroughly dried before the waxing was done. Now, if we have a *tin* can or tank that has been used for linseed oil, there will be no trouble at all; for soap and water, with the addition of a little ashes, would clean it so perfectly that it would be, to all intents and purposes, as good as a new tin. This is one reason why we have of late been so strongly in favor of tin instead of wood for holding and shipping honey.

WHITE-CLOVER JUST COMING INTO BLOOM; WHY DID THE QUEENS DIE?

There were very few bees lost last winter in this vicinity; several wintered every stand. We were not quite so fortunate, but are not by any means discouraged. The apple-bloom is over. Dandelion is in full bloom. They are just beginning on the oak and hickory. White clover is just coming into bloom. The clover bloom has not been more promising for a great while than now. Some have swarmed, and others are getting ready.

What is the cause of so many colonies becoming queenless? Out of our apiary we have had four queens disappear; two that left seven frames of nice brood, with plenty of bees and honey. Mr. J. E. Maury has found four queens missing in unpacking half of his apiary. Other neighborhood apiaries met with similar losses.

Van Wert, O., May 12, 1886. LEVI PERRY & SON.

It is a little difficult, friends, to decide whether your losses of queens are unusual or not, so long as you don't tell how many colonies you have. If you lost 4 queens out of 8, it would be a little remarkable; but if only 4 out of 40 or 50, it would be nothing at all strange or unusual. This is why I always like to have any writer tell the number of his colonies.

HOW HAYHURST AND HIS BEES FARED IN THE RECENT STORM AT KANSAS CITY.

I am thankful that I can report that the awful storm which swept over our city last Tuesday did *us* no material harm; a few of our trees were broken, one being torn all to pieces. In the bee-yard, hives and covers were blown about, and a few were broken by heavy branches from the trees. Few bees were killed, and the enameled sheets protected most of the colonies from the rain. It will give you some idea of the terrible power of the wind, to tell you that leaves from the trees, clover-heads, and even slender blades of blue grass, were torn off and driven with such force against the sides of the hives and honey-house that many of them are there yet, although there was a heavy driving rain against them all day yesterday. Many of the larger leaves are so pounded into the paint that they can not now be removed without scraping. The hives and buildings were freshly painted several weeks ago, and the paint is not yet entirely hard. It required several hours for two of us to clean up the debris in the bee-yard. But, alas! this was nothing compared to the sad scenes of death and destruction in the city. Reports from neighboring apiaries indicate that bees suffered very little.

E. M. HAYHURST.

Kansas City, Mo., May 15, 1886.

HOW TO GET WHAT YOU WANT WHEN YOU VISIT THE "HOME OF THE HONEY-BEES."

I see, by an editorial, that you have trouble with customers making orders personally. I suppose some of your customers besides myself were also vexed; for I thought, after following one of the clerks up and down, I could get the goods half a dozen times myself, and they perhaps thought there was no one in the world as awkward as I am. Next time I took a catalogue and order-sheet and marked the goods I wanted, and handed it to a clerk, who started off with a basket and order-sheet, and in a short time my goods and bill were in charge of the clerk in the counter store, where I settled and loaded up, and was ready to start for home without troubling any one but those with whom my inquisitive nature came in contact. C. WECKESSER.

Marshallville, O., May 24, 1886.

Friend W., I am very glad indeed if you succeeded as well as you say. Since the burning of our warehouse and contents we have been kind o' mixed up and out at sea; but I think we are getting through the season pretty fairly after all.

HOW SHALL WE PREVENT BEES FROM DROWNING IN THE BREAD-PAN FEEDER?

I like these (as I use them) better than any other feeder, but I am somewhat troubled by bees drowning in them. One of your correspondents says he paints his, and sprinkles coarse sand over them when wet. I think it a good idea, and I would paint mine, only I fear the paint might be distasteful or injurious to the bees, especially when feeding pretty warm syrup. Do you think it would?

E. H. McCLYMONDS.

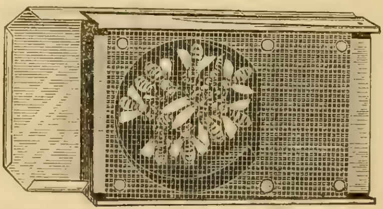
Templeton, Armstrong Co., Pa.

Friend M., instead of paint use melted beeswax, and I am inclined to think no sand will be needed in that case; for a bee that can't stick to beeswax ought to be sent somewhere to serve an apprenticeship.

ANOTHER IMPROVEMENT IN THE PEET QUEEN-CAGE.

AND A NICE PICTURE OF THE SAME.

Is it not pleasant to have nice engravings? There are few things in this world that please me more than to see a really nice picture of something I want to show. Well, just see if you don't think this picture illustrates the point.



IMPROVED PEET QUEEN-CAGE AS WE NOW MAKE IT.

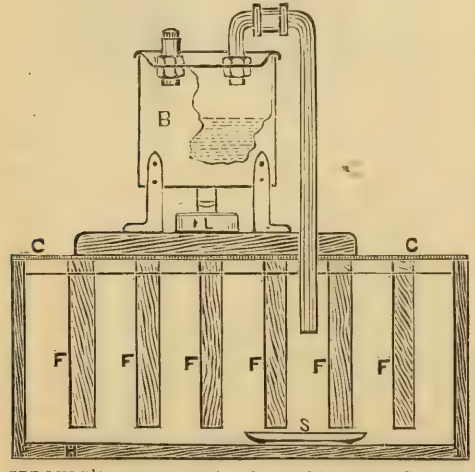
Our engravers have tried once or twice on it, but Ernest complained that they didn't do as well as they might do, and he wrote them quite a letter about it, and both together they managed to get up the above beautiful cage of queen and bees. Why, it looks almost as if you could see the little chaps move around. Even the yellow bands are plainly shown. About the improvement: It is simply in having the wood come up above the edges of the wire cloth, accomplishing two objects; first, the raw edges of the wire cloth are kept from scratching and catching your clothing, etc.; second, when the little board that covers the wire cloth is tacked on the projecting lip of wood, it holds the board up so as to allow ventilation at each side of it. If several cages are to be fastened together, it also spaces them so as to let air in at the ends. Although great numbers of queen-cages have been suggested, all things considered we like the above better than any thing else.

DISINFECTION OF FOUL-BROODY HIVES BY STEAM.

HOW TO MAKE A HOME-MADE APPARATUS FOR THE PURPOSE.

IN the course of a long struggle with foul brood, a great, if not *the* greatest difficulty I had was the disinfection of the hives, feeders, and other appliances which had been in contact with diseased stocks of bees. I tried washing with a solution of salicylic acid (in which, however, I had very little faith, owing to its not being volatile at ordinary temperatures); also with carbolic acid, and fumigation with burning sulphur, but all to no purpose, as the disease reappeared, soon after the bees and brood had been got into a healthy state, when they were placed in a hive which had been tenanted by a diseased colony. After many failures I hit on a process by which an infected hive can, with a trifling expenditure of time and trouble, be effectually cleansed, and rendered fit for use without the least danger of its communicating foul brood to any colony placed in it. As the matter may interest American bee-keepers, I will, with your kind permission, describe my process in GLEANINGS. As I know very little of the hives in use on your side of the Atlantic, a short description of the hives generally used, both in England and Ireland, may be necessary to enable your readers to make allowance for difference in construction when using the process I recommend.

The standard British frame measures 14×8½ inches, and the hive holds from ten to twenty of these frames. The hives are usually made with double walls, the space between being packed with cork dust which Mr. F. Cheshire's experiments have shown to be the best and cheapest non-conductor of heat we have. Instead of the honey-board, we use a covering of carpet, which lies on the frame-top at all times when supers are not on. When I mention the slides by which the entrance can be closed if necessary, I consider my description full enough for the present purpose.



SPROULE'S APPARATUS FOR DISINFECTING FOUL BROOD.

The principle of my process is, passing a current of steam at a low pressure, from a solution of pure carbolic acid and water, through the hive, by which means the carbolic acid in a finely divided state is brought into intimate contact with every part of the hive interior, which is thereby thoroughly cleansed and disinfected. To effect this a small boiler, B, is required, and this I made from an iron paint or ink can as follows: A can to hold 12 lbs. of printing-ink measures about 10×5 inches in diameter. With a cold-chisel it was reduced to five inches in height, and three legs of so-called half-round iron were riveted to its sides so as to raise it three inches. In the cover I cut two ½-inch holes, in each of which I put a wrought-iron nipple, which were screwed in their places with back-nuts, shown in the top of the boiler B. The cover was then red-leaded round its edge so as to make a tight joint, after which it was forced into its place in the can. On one of the nipples an elbow was screwed, then another nipple, then another elbow, and finally a piece of ½-inch G. B. tubing, about 14 inches long. I then got a piece of yellow pine, 12×8×2 inches, and about two inches from one end I made a hole large enough to admit the piece of G. B. tubing. To complete the apparatus, an ordinary tin canister cover (one made of a solid piece of tin without soldering), about three inches in diameter, is required as a lamp, as shown at L. To use it, a wineglassful or two of pure carbolic acid is poured into the boiler B with about double the quantity of hot water, and the open nipple is closed with a suitable cork. The hive H to be operated on is prepared by placing a few empty frames, F, F, F, in position, on which the carpet covering, C C, is laid, a hole about an inch in diameter being made in the middle of the latter. The piece of pine is then laid on the carpet, to form a stand for the boiler, which is placed in such a position that the G. B. tubing passes vertically through both wood and carpet into the hive. The canister cover is filled with methylated spirits of wine, put under the boiler, and lighted. In about five minutes the acid and water will boil, and the steam will pass through the tube into the hive. It may be desirable to place a saucer, as at S, in the hive, to hold the drip from the boiler. At first the steam will condense on the hive-sides and floor-board; but when they become heated, the steam will force its way into every crevice, and at last through the carpet; but it can be confined to the hive by placing a sheet of brown paper between the carpet and frames. About ten minutes' steaming will be sufficient for any hive. To get rid of the smell of the carbolic acid, a current of steam from water only will be necessary. If the boiler is found to leak, a little sawdust put in with the carbolic solution will stop it.

For disinfecting hives, I do not think this simple apparatus can be excelled, and with ordinary care it is most effective. I have used it with over a dozen hives, in each of which a colony had died of foul brood. Those hives have been in use for over two years, without any trace of the disease being visible.

The winter here has been unusually severe and prolonged this year. Although this is the last day of March, we have, at the time I write, a whole gale blowing from the south-east, with showers of sleet at intervals. Taking advantage of a fine day recently, I examined my colonies, and was sorry to find five of them dead. The Carniolans, both full blood and first crosses, were in very good condition, and are, so far as my experience goes, more easily wintered than either blacks or Ligurians.

Dublin, Ireland. ROBERT SPROULE.

OUR OWN APIARY.

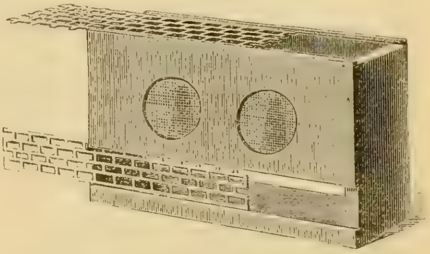
THE ALLEY DRONE-TRAP, AND HOW IT DOES ITS WORK.

IN consequence of so much being said of late in praise of the Alley drone-trap, I determined to give it a test in our own apiary. It may be said that the "Home of the Honey-Bees," so called, is somewhat conservative, and rather intolerant to traps and "fixin's." Our readers, however, may rest assured that a thing possessed of real merit, and about which reports speak favorably, sooner or later shall not lack for a fair trial in our apiary; so with Mr. Alley's invention, although passing under the name of a "trap." I felt morally certain that the invention was a success, but I could not be fully satisfied until I had witnessed its operation, and just how well it did its work. What may be a success to one may not be at all satisfactory to another.

With one of these in hand I proceeded to a chaff hive where had been a drone-laying queen, and, in consequence, at this time there was a great predominance of drones. The construction of the trap is such that it can not easily be attached to a *chaff* hive without the aid of a couple of wire nails. These, driven cornerwise, or toe-nail fashion, as it is called, hold the trap in the desired position. The nails need only just catch the front of the hive, and the trap can easily and quickly be removed or adjusted to any double-walled hive. Or, if more convenient, the sand in front of the entrance can be banked up so as to hold the trap in the proper position. As the former plan happened to be more convenient at the hive where I wished to make the trial, the trap was fastened in that way. This was about 10 A.M., and very soon quite a number of bees hovered in front of their hive, evidently greatly confused at the altered appearance of the entrance. After flying about for a few minutes they no doubt thought that what could not be helped must be endured, and so crawled through when they had thoroughly inspected the perforated metal. A whole day was necessary for the bees to become accustomed to the drone-trap, after which time they passed and repassed as before, but not without some little hindrance. In the height of the honey-flow this would result in the loss of considerable honey, especially if very many of the hives had the traps attached to their entrances. On the other hand, it may be said that the observant apiarist will place the drone-trap in position a day or two *prior* to the advent of a swarm; and as the bees are liable to loaf during this time before coming forth, nothing will be lost.

IS THE TRAP A SUCCESS IN CATCHING DRONES?

Although the hive to which I attached the trap contained a large number of drones, none made an attempt to pass the perforated zinc until about 1 P. M. On coming up at this time I was greatly amused to see them tugging at every available hole in the perforated metal. Their clumsy round heads wiggled and squirmed, but to no purpose. In fact, there were so many trying to make their way through that even the workers could not pass, by reason of the multitude of drones blocking up the holes. To say the least, their efforts were "real funny," as the boy says. After repeated attempts the poor drones resorted to the then remaining place of escape; namely, through the cone in the trap. This, as you are aware, leads into a little chamber where the drones are made prisoners. In about an hour afterward I returned, to find about a quarter of a pound of drones—quite a number of which had bumped around until they had worried themselves to death, and some were dead below, as they had been unable to find the cone. On trying two or three hives in this way I find that the trap gives excellent satisfaction. As has been said, drones can be caught and disposed of accordingly. If one desires to take half a pound or so of choice drones to another apiary, I think I should take the trap away in about an hour after they have begun to collect in the upper chamber. If left longer they will worry themselves to death, as I have found by experience. Perhaps our friends would like to have a cut of the Alley drone-trap reproduced, so here it is.



THE ALLEY DRONE-TRAP.

You observe, through the circular openings, the cones through which the drones pass when they find themselves unable to escape by means of the perforations below.

DRONES BY THE POUND.

I was just wondering whether there were not some enterprising Yankee who would advertise to sell choice drones by the pound. He is to catch them with the Alley trap, and supply them, at whatever cost may be agreed upon, to bee-men having black bees, and who are desirous of Italianizing at a small cost. Of course, the latter are to get rid of their black drones by the aid of the trap before mentioned. It would be somewhat of a trick to ship drones, and I am doubtful whether drones alone could feed upon the ordinary candy, such as is used in shipping-cages. However, we have mailed successfully, in the common Peet cage, about a dozen drones to parties who called for them. If drones were allowed to have access during shipment to unsealed honey, with a few bees, they might arrive in good condition. Possibly we may try the experiment here; and if we succeed we will report later.

OUR PREPARATIONS FOR QUEEN-REARING.

We have to day, May 25, 401 stocks, a part of which are full colonies, and the remainder nuclei. By the time this issue is out we shall probably have many more, as the boys are dividing, with a view of raising as many queens as possible. As Neighbor H.'s and queens of our own raising have given so much better satisfaction than those we buy from a distance, we are going to make an effort to supply, as far as possible, our friends with queens from our own apiaries. I do not mean to reflect upon the friends who have supplied us with queens from the South, for as a rule they have been good. To ship queens a thousand miles and then re-ship them another thousand is certainly not adding to the longevity of the queens or to their prolificness; and, besides, our customers will be better pleased. We intend to increase our colonies up to 500, and we shall make a vigorous attempt to supply, as far as possible, queens from our own apiary. Of course, if the orders pile in upon us too heavily we shall have to call upon those outside of our immediate vicinity.

ERNEST R. ROOT.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 1, 1886.

His leaf also shall not wither; and whatsoever he doeth shall prosper.—Ps. 1:3

HEIGH-HO! One of our Brahma hens has a *nest full* of chickens, after all.

NUMBER OF SUBSCRIBERS AT THE PRESENT DATE.

WELL, there are just 5617—just 95 more than we had a month ago. Many thanks to you all for so much encouragement.

REDUCTION IN PRICE OF DRONE - GUARDS AND DAVIS BRUSHES.

BY referring to our catalogue of the last edition you will see that the Jones drone-guards have dropped from 10 to 5 cts. each, and the Davis brushes from 15 cts. to 10 cts. For rates by the tens and hundreds, see price list.

SUPPLIES BY THE CARLOAD.

GOODS are still going off at a pretty good rate. Our freight and express shipments amount to about a carload and a half of goods daily. With one or two exceptions we have no very old orders waiting. So, friends, we think we are doing pretty well, considering the loss we have sustained in our warehouse. It is beginning to make our faithful old engine look tired.

TERRY'S NEW BOOK.

WE shall be ready to mail the above about the time your order reaches us, probably. Although the book is mainly in regard to the winter care of horses and cattle, it touches on almost every thing connected with successful farming—shelter, comfort, feeding, exercise, kindness, different sorts of feed, with a full treatise on the most economical way of saving manure. A full description of the model barn is given, as shown on p. 396. Price 40 cts.

BEAUTIFUL COMB HONEY FOR ONLY 12C. PER LB.

As the lot of honey mentioned on page 329 of our issue for April 15 does not go off very rapidly, we now offer it, in order to make room for the new crop, for only 12 cts. per lb. It is not only handsome, strictly white comb honey, but it is as delicious as any honey I ever tasted. For weights of the different cases, see reference above. At this low price it must be sold in full cases. Two or more cases, 5 per cent off; 10 or more, 10 per cent off.

GETTING UP EARLY IN THE MORNING.

SOMEHOW I have great respect for the man, woman, or child, who delights to be up during the bright morning hours, and to push ahead in whatever is to be done. Some years ago, about the first of June, one morning before it was quite daylight I saw a couple of boys coming to meet me. One had something in his hand that I found to be a box of strawberries. He was a young bee-keeper, and had driven quite a good many miles to make us a visit, and he had push and energy enough to arrange it so as to get through to Medina in time to see business start up in our big establishment. He had come to buy some supplies, and had brought along some strawberries to trade on supplies. I traded at once on the strawberries; in fact, I always buy strawberries of almost everybody, especially if the berries are fresh, and it is early in the morning. I do not think I told the boys so, but I made up my mind that they would get ahead in this world with bees or strawberries either, and I guess I got it right too. One of the boys was Christian Weckesser, Marshallville, O. You will notice his advertisement of queens and strawberry-plants, and I think you will notice that he is a good straight boy every time — a Christian by name, and a Christian in spirit. Now, I do not know that getting up early in the morning has all to do with his success; but it indicates that he has enterprise and go-ahead, and that is worth a deal in this world. No one can afford to lie abed mornings in the beautiful month of June, as it seems to me. If you do not get sleep enough when you get up at half-past four, go to bed at half-past eight at night, or sooner; but don't lose the beautiful morning hours.

FORGETTING PRESENT BLESSINGS AND PRIVILEGES.

LAST night at sundown the thermometer indicated 47°; by 9 o'clock it indicated only 42°, and there was every prospect of a sharp frost. In talking with my wife I told her that the frost that we should probably get would stop the flow of honey from the locusts, would result in a heavy loss on our strawberries, probably kill or cut down the corn and potatoes, and be death to the cucumbers and our 2000 tomato-plants, many of which have tomatoes on, the size of hens' eggs, besides freezing a lot of other stuff. I thought of building fires, as has so often been recommended, with a view of saving a part of the stuff; but we had so much of it, and all of the fuel was so wet from the recent rains, that it seemed almost out of the question to try it. As I went to sleep I thought of the probable ruin I should see in the morning, and it seemed to me I had never appreciated the comforts that surround us this season. I hadn't even thought to thank God for them as I ought to thank him; but I made up my mind that, if it clouded up, or the temperature changed, so that the things that had become so dear to me (by watching their daily growth) were saved, I should, in the morning, be ready to give thanks in good earnest. Some time in the night my wife made the remark, that the sky was partly clouded over, and that the thermometer was rising; but I was too sleepy to think much more about it than to be thankful. This morning it was warmer, and every thing is all right—not even a leaf withered; and as I look over them to-day I do prize them, and feel happier in the possession of these gifts than I could possibly have done without the frosty air of last evening as a reminder. Then, dear friends, is it not a kindness to us to be reminded occasionally of the blessings we enjoy, by some such hint or warning?

DR. C. C. MILLER'S NEW BOOK, "A YEAR AMONG THE BEES."

THIS is a very pretty little bound volume of 114 pages. It is a plain, familiar talk about bees and bee culture. It starts out in an intensely interesting and taking way, and keeps it up all through the book. One of its particular charms is, that friend Miller does not pretend to know all there is to be known in the matter. He does not get up on to any high rostrum at all, but talks about the business just as one farmer would naturally talk to another about seeds, manures, implements, etc. He tells of the way in which he has worked, and of the short cuts he has made. He tells of his blunders, and frankly says a good many times that he does not know just the best way. As an illustration, after having tried almost all kinds of feeders, and after having had them in the way after he got through with them, perhaps forgotten and left in the hives when they ought not to be, he decides now in favor of having no feeders at all. But where a colony is to be fed, he does it by filling empty combs with syrup, in a manner similar to that given by our old friend Quinby, years ago. His wife and his boy assist him in the work, not only with their hands, but with their brains; and I tell you, my friends, it is a big element toward success to have a good smart woman to help you in the bee-business. Very likely it is in any kind of business; but a great part of bee culture is emphatically woman's work. Friend Miller has a particular way of placing his hives by twos; and if there is any thing about the book that is lacking, it is that he did not give us a nice picture of an apiary arranged the way he would have it; and, by the way, more pictures of other things he describes and speaks of.

Friend Miller is not only a genius, but he is a man who has proved his ability to manage bees, by making money at the business; that is, he made money during favorable seasons; during unfavorable seasons, he frankly owns up, he has not. I think it will pay every one who has a dozen colonies of bees or more to have "A Year Among the Bees." Price 70 cts.; 10 or more copies, 50 cts. each. If wanted by mail, add 5 cts. each for postage.

TOBACCO COLUMN.

I HAVE been using tobacco for upward of ten years, but have stopped since Jan. 1. If you will send me a smoker, I hereby agree to send you pay for the same if I again commence; but I will not commence again, as I fairly loathe it now. WM. F. BEACH.

Philadelphia, Pa., March 23, 1886.

I will take you up at your offer, to send me a smoker. I will give up smoking tobacco.

SAMUEL MUMMA.

Highspire, Dauphin Co., Pa., April 14, 1886.

I send you these few lines to let you know that I have resolved to quit the use of tobacco, after the use of the weed for 7 years; and I now promise myself that I will not use it again. If you think I am entitled to a smoker, please send it; and if I ever break my pledge, I will pay you full value.

Cass City, Mich. J. W. WRIGHT.

The smoker and "Truth" are duly at hand, for which please accept my thanks. Will do as I agree to do. My tobacco has gone. JOHN ARNER.

Rimersburgh, Pa., March 29, 1886.

I have left off using tobacco. I wish you would send me one of your bee-smokers. I hereby promise, if I ever use tobacco again I will send you the money for the smoker. F. H. YORK.

North Norway, Maine, March 29, 1886.

Having formed the acquaintance of L. B. Polk, who is engaged in the honey-business, I have, through him, gone into it. Having chewed and smoked from boyhood, I have quit. Please send smoker; and if I ever begin I will pay you for it.

R. SIMKINS.

Anderson, Ross Co., O., Apr. 19, 1886.

I commenced chewing about two years ago. A few days ago I thought I would would quit using tobacco. I heard that if any one would quit the use of it you would send a smoker as a present. If I ever commence using it again I will pay you full price for it. J. C. STEPHESON.

Burlington, Burlington Co., N. J., Mar. 8, 1886.

INFLUENCE OF A 14-YEAR-OLD BOY OVER HIS FATHER.

I am 14 years old, and commenced to keep bees last summer. My father has chewed tobacco for 20 years, but he quit last May, and told me I might try for a smoker, and he promises to pay you the price of one if he ever touches it again.

Ypsilanti, Mich., April 13, 1886. A. F. SMITH.

A STITCH IN TIME.

I saw, while I took GLEANINGS, that you had much to say about that nasty weed tobacco, and also that you gave a smoker to any one who would quit using it. Well, put my name down on that list for two smokers—one for myself, the other for my neighbor, who has also quit its use. I have just gone over into my twenties, so I quit while young, and a "stitch in time" will count nine. You can send both smokers to me, and I will stand good for both. Should I begin using it again, I will pay you for both smokers. Both my parents are slaves to it, and I can see its evil effects. Bees have all wintered well in this locality this year, and carried in pollen March 18th for the first time this year.

MICHAEL BUSCHER, JR.

Cicero, Hamilton Co., Ind., Apr. 14, 1886.

QUIT FOR LIFE.

I am a rather poor hand to beg; but I learn from GLEANINGS that you offer a smoker to any one who has been in the habit of using tobacco, and is willing to quit. I see, also, that those who get a smoker, and then take up the habit again, must pay for the smoker. I have quit for life; and if I am entitled to a smoker, please send it by mail and I will pledge myself to pay you for one dozen smokers if I ever use tobacco again. I smoked for 9 years, and have seen the folly of the filthy practice, and have been the means of turning others from it. I have read of several in GLEANINGS who say they have not got to pay for their smoker yet; but I read to-day of two who had sent in the price of smoker to you, stating they had forfeited their contract, and had gone to smoking again. This is all wrong.

A. B. GEORGE.

Newberg, Yamhill Co., Oregon, Mar. 26, 1886.

ITALIAN & CARNIOLAN QUEENS.

Bred in separate apiaries, away from other bees. Warranted Italian or untested Carniolan queens, in May, $1.25; 6, $6.75; June, $1.10; 6, $5.90; July, $1; 6, $5. State which you prefer, Italians bred from my *Bellinzona strain*, or *Golden Italians*. I am prepared to please all.

BEES AT REDUCED RATES.

For full particulars, and prices of tested queens, bees, etc., send for circular and price list. Satisfaction guaranteed. **CHAS. D. DUVALL,**
9tfdb **Spencerville, Mont. Co., Md.**

QUEENS UNEXCELLED.

From Mr. Benton's best imported mothers, very low. Send for circular to
8tfdb S. F. REED, N. Dorchester, N. H.

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

PURE ITALIAN BEES.

Full colonies, nuclei, bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. ☞ Send for my circular and price list. You will save money by so doing.
C. M. DIXON,
4-11-db PARRISH, FRANKLIN CO., ILL.

QUEENS.

I have them, bred from a best selected queen of Root's importation, 90 cts. each; 6 for $4.50. I can give all orders immediate attention, and ship by return mail. Send postal for dozen rates.
10tfdb **B. T. BLEASDALE,**
596 Woodland Ave., Cleveland, Ohio.

Look! Honey-Comb Foundation! Look!

FRIENDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills. Discounts on early orders. Send for free samples and prices. Strawberry plants, grape roots, and Italian queens at reasonable prices. We will allow 10 % discount until May 15th, and 5 until June 1st on fdn. Address
C. W. PHELPS & CO.,
8tfdb TIOGA CENTRE, TIOGA CO., N. Y.

BEES BY THE POUND,

AND UNTESTED QUEENS A SPECIALTY.

One pound of Bees, $1.00. Queens, $1.00 each. Express charges prepaid on orders of 10 lbs., to any part of the United States except California and Oregon. Write for discount on large orders. Orders from dealers for a weekly delivery of queens solicited. Safe arrival and satisfaction guaranteed. Make money orders, drafts, etc., payable at Baton Rouge, La. JOS. BYRNE,
7tfd WARD'S CREEK, EAST BATON ROUGE PAR., LA.

SUMNER & PRIME,

BRISTOL, VERMONT.

—MANUFACTURERS OF—

Bee-Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and samples free.
7-9-11d

F. HOLTKE'S 3-FRAME NUCLEI, WITH $1.00 QUEEN, FOR ONLY $2.00!

Three-frame nuclei, with $1.00 queen, from 15th of May on, $2.00. Combs built in Simplicity frames, and well stocked with bees and brood. 10-11-13d
Fred'k Holtke, Carlstadt, Bergen Co., N. J.

QUEENS. 1886. QUEENS.

Reared from Imported Mothers. Two, three, and four frame nuclei. Safe arrival and satisfaction guaranteed. Send for price list. Address
5-11db FRANK A. EATON, BLUFFTON, OHIO.

LEWIS V-GROOVE

ONE-PIECE SECTIONS

Down. Down, Goes the Price.

First Quality, White Basswood, One Pound Sections, In lots of 500 to 3000, $4.00 per 1000.

SPECIAL FREIGHT RATES.

If 3000 or more are wanted, write for special prices, delivered to you, freight paid by us.

G. B. LEWIS & CO., 9tfdb
April 15, 1886. **Watertown, Wisconsin.**

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db
A. F. STAUFFER & CO., Sterling, Ills.

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

PURE ITALIANS.

	May	June 1 to 18	June 21 to Oct. 1
Tested queens	$2 50	$2 25	$1 75
Untested queens		1 25	1 00
Bees per pound	2 00	1 50	1 00
Nuclei per comb	90	65	50

All communications promptly responded to, and all questions cheerfully answered.
8-13db **S. C. PERRY**, PORTLAND, IONIA CO., MICH.

Western BEE-KEEPERS' Supply House.

We manufacture Bee-Keepers' supplies of all kinds, *best quality* at *lowest prices.* Hives, Sections, Comb Foundation, Extractors, Smokers, Crates, Honey Buckets Veils, Feeders, Bee-Literature, etc., etc. Imported Italian Queens, Italian Queens, Bees by the lb., Nucleus or Colony. **"Bee-Keepers' Guide, Memoranda and Illustrated Catalogue" of 48 pages FREE** to Bee-Keepers. Address
JOSEPH NYSEWANDER,
DES MOINES, IOWA, 7tfd

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

HAVING moved my large queen-rearing apiary from Lewisville to Milton, I will still furnish pure Italian bees and queens in any quantity and shape. Those wanting to start apiaries should write for prices. I also will furnish eggs from California bronze turkeys, at $1.50 per sitting of 9.
3-19d GEO. W. BAKER, Milton, Ind.

J. P. CONNELL,

HILLSBORO, HILL CO., TEX.,

Makes a specialty of rearing pure Italian queens, and of shipping bees in two, three, and four frame nuclei. Tested queens in March and April, $2.50; after, $2.00. Untested queens in April, $1.25; after $1.00. Satisfaction guaranteed. 67911d

SEND FOR CIRCULAR.

1000 Lbs.

BEES FOR SALE.

Here I am for the spring of 1886, with 1000 LBS. OF HYBRID BEES for sale by the pound. Bees $1.00, and queens 50 cts. in May; bees $1.00 and queens 35 cts., after the 10th of June. All express charges paid by me in the United States and Canada. Safe arrival guaranteed. Orders received first will be filled first. Remember, I can not fill all in one day. Order early, and avoid delay. No order will be booked without the money. Money returned when required. I have no circular. Inclose stamp when you want a reply. I will start to ship on the 15th of May, weather permitting.

THOMAS GEDYE,
8-12db **La Salle, La Salle Co., Ill.**

BEAUTIFUL

FOUNDATION

And very choice all-in-one-piece **SECTIONS**, V-groove — wholesale and retail, and exceedingly cheap. Send for Samples and Free Price List of every thing needed in the apiary. 6tfdb
(Near Detroit.) M. H. HUNT, Bell Branch, Wayne Co., Mich.

PURE ITALIAN QUEENS.

Single untested, $1.00; 6 for $4.00. Tested, single, $1.50; 6 for $7.50. Selected tested, single, $2.50.

HENRY STECKLER, SR.,
10-11d **P. O. Box 99. New Iberia, La.**

A YEAR AMONG THE BEES.

A New Bee-Book of 114 Pages.

Price 75 cents. Sent postpaid by the Author,
1013db **DR C. C. MILLER, Marengo, Ills.**

PURE ITALIAN QUEENS

Bred from select imported and home-bred mothers, of the best strains. No black bees near. Untested queens, in June, $1.00 each; 6 for $5.00. Tested queens, $2.00 each. For nuclei, etc., send for price list.

D. G. EDMISTON,
10tfdb ADRIAN, LENAWEE CO., MICH.

MY 18TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
10 11tfd *H. H. BROWN, Light Street, Col. Co., Pa.*

Italian Queens sent by Mail.

Untested queens from imported mother, April, $1.25; May, June, and July, $1.00. After April, per half-dozen, $5.00. E. CRUDGINGTON & SON,
8tfdb Breckinridge, Stephens Co., Texas.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

Foundation - Mill For Sale.

One ten-inch Root comb-mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $15.00. The list price of a new mill of this kind is $20.00. **A. I. ROOT, Medina, O.**

HEADQUARTERS IN THE SOUTH

FOR THE MANUFACTURE AND SALE OF

BEE - KEEPERS' ∴ SUPPLIES.

The only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, etc. The Viallon and Root Simplicity Hives a Specialty.

ITALIAN QUEENS,

Untested, in April, $1.25 each; $13.00 per doz. From May 5 to June 1, $1.10 each, $12.00 per doz. After June 1, $1.00 each, $10.00 per doz. Tested, $2.50 each; select tested, $3.00 each to first of June. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

With pure Italian queen, containing 3 pounds of bees when received; in April, $4.00; after May 25, 25 cts. less. Safe arrival and satisfaction guaranteed. For more particulars, send for catalogue for 1886.

P. L. VIALLON,
11tfd **Bayou Goula, Iberville Parish, La.**

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

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BEES IN MISSOURI, J. C. STEWART, HOPKINS, MO.

SECTIONS,

$3.50 per M. Dovetailed, all-in-one-piece. Send 2-cent stamp for sample. **E. S. MILLER,**
9-12db **Dryden, Mich.**

VIRGINIA LAND AGENCY.

Cheap Farms. Splendid climate. Short Mild Winters. Good Markets. Descriptive Land List Free.
6-11b **GRIFFIN & JERVIS, PETERSBURGH, VA.**

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

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SEND FOR FREE SAMPLES OF FOUNDATION

TO C. W. PHELPS & CO., TIOGA CENTER, N. Y.

ITALIAN QUEENS, untested, May and June, $1.00; six for $5.00; after July 1st, 85c each; six, $4.50; 2-fr. nucleus, untested queen, June, $2.75; after July 1, $2.25. Send for price list of bees by the pound, fdn., etc. JOHN NEBEL & SON, High Hill, Mo.
7-12db

SYRIAN AND ITALIAN QUEENS,

Before June 15, tested, $2.50 each; after, $2.00 each. Untested, before June 15, $1.00 each; after, single queen, $1.00; six for $5.00; twelve for $9.00.
5tfdb **ISRAEL GOOD, Sparta, Tenn.**

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.— To exchange Italian bees, brood, and queens, for fdn., beeswax, type-writer, or any thing having a standard market value. 6tfdb
THOMAS HORN, Box 691, Sherburne, Chen. Co., N. Y.

WANTED.—To sell or exchange, farm, 180 acres, good buildings, good sandy soil; also latest improved Steam Thrashing-machine. Either or both at a bargain. Address J. A. OSBUN & SON,
7tfdb Spring Bluff, Adams Co., Wis.

WANTED.—To sell cheap for cash, or will exchange for bees, Root's chaff hives, the D. A. Jones chaff hives, made up or in the flat, wide frames, brood-frames, dovetailed sections, cases, etc. J. M. KINZIE,
10tfdb Rochester, Oakland Co., Mich.

WANTED.—An active and experienced young man to work in apiary. State age, experience, and wages wanted, with references.
W. D. WRIGHT, Knowersville, Albany Co., N. Y.

WANTED.—To exchange pure Italian queens for beeswax at 28c per lb. Queens, select, $3.00; warranted, $1.50. Ship wax by freight to Barrytown, N. Y. CORNELIUS BROS.,
7 12 db LaFayetteville, Dutchess Co., N. Y.

EGGS.—From choice stock, for hatching. Safe arrival guaranteed. Wyandottes, $2.50 for 13; $4.00 for 26. Houdans, $1.50 for 13; $2.00 for 26. Breeding birds and chicks for sale; or I will exchange for bee-supplies I can use. J. EVANS,
9tfdb Box 89, Schaghticoke, N. Y.

WANTED immediately, 20 untested queens in exchange for beautiful white basswood one-piece sections, at $4.25 per 1000. A. D. D. WOOD,
10tfdb Rives Junction, Jackson Co., Mich.

WANTED.— To exchange 20,000 strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale, 75 cts. per 100; $4.00 per 1000, for bees, foundation, or improved poultry.
10tfdb W. J. HESSER, Plattsmouth, Neb.

WANTED.—Ginseng root.— Will pay 75 cents per lb. for the dried root. One ounce to one lb. may be sent by mail to my address. Larger packages may be sent by express to Ransom, Pa., via Pittston, Pa. Address A. P. SHARPS,
10-11d Exeter, Luzerne Co., Pa.

WANTED.—To exchange new Novice honey-extractors for A. and L. frames; will exchange for a bone-grinder, or good books, or any thing useful. GEO. W. BAKER, Milton, Ind. 3-5-7-9-11-13d

WANTED.—To exchange Gale plow, square harrow, subsoil plow, double lead harness, riding-saddle, horse-clippers; also a Stevens 44 rifle and 12-gauge shot-gun combined, for Barnes saw, hives in flat, or offers. Goods shipped from Philadelphia, Pa.
11d H. M. HIESPELL, Paola, Fla.

WANTED.—To exchange Heddon cases for 10-f. L. hives, or good second-hand 10-f. L. hives for Italian queens, or offers. D. G. WEBSTER,
11d Blaine, Boone Co., Ill., May 24, 1886.

WANTED.—To exchange for bees a one-horse harrow, feed-cutter, 50-gall. farm boiler, Simplicity hives, used one season, frames of comb.
11d ARTHUR TODD,
1910 Germantown Avenue, Philadelphia, Pa.

WANTED.— To exchange Italian bees for a bicycle, from fifty to fifty-six inch. 10d
W. E. DARROW, Box 106, O'Fallon, St. Clair Co., Ill.

WANTED. — To exchange a trio of white-faced Black Spanish fowls for Italian bees; or will sell same for $12.00 cash. MYRON SCHERMERHORN,
11d Elizaville, Columbia Co., N. Y.

WANTED.— To exchange, small-size Centennial incubator, new or second hand, or brooder, for Italian bees, nuclei, or full colonies. 11-12d
JAMES D. HALSTED, Rye, Westc. Co., N. Y.

WANTED.—To exchange silverhull buckwheat, at one dollar per bushel, for offers.
C. D. MANVILLE, La Grange, O.

WANTED.—To exchange 1-qt. berry-baskets for fdn. or silverhull buckwheat. Seed-baskets, $7.00 per 1000. JOHN HARROLD,
Columbiana, Col. Co., Ohio.

STANLEY'S
Automatic Honey-Extractor
AND DOLLAR SMOKER.
Send for circular and Price list to
G. W. STANLEY, Wyoming, N. Y.

ONE-PIECE BOXES AT $4.00.
I can furnish one-piece boxes, 4¼x4¼x1⅞ wide at $4.00 per 1000; 300, $2.00. Send for sample.
11d J. P. McGREGOR, FREELAND, MICH.

HARRINGTON'S AD.
BEES CHEAP!
I have the finest lot of Queens and Bees I have ever raised in my 13 years' experience, and should like to have everybody see them. I will sell at following low prices:

SELECT TESTED (VERY FINE)	*$2.00*
TESTED - - - - - -	*1.00*

My Queens are nearly all mated with drones from an imported Italian Queen. Half-blood Holy-Lands, Cyprians, and Albinos, at same price.
H. B. HARRINGTON,
May 26, 1886. Medina, O.

CELERY PLANTS!
Henderson's White-Plume Celery, and new apple-shaped Celeriac, at 25 cts. per 100, or $2.00 per 1000.
11-12d F. HOLTKE, CARLSTADT, BERGEN CO., N. J.

CHICKENS. S. S. Hamburgs, B. Leghorns, P. Rocks; eggs, $1.00 per setting for the rest of the season. Fowls for sale.
A. H. DUFF, CREIGHTON, OHIO.

FOUNDATION 8 Square ft. to lb., 38 cents.
W. T. LYONS,
Decherd, Tenn.

BERRY-BASKETS.
One-quart baskets, $7.00 per 1000; best iron-bound, 32-quart crate, filled with baskets, complete, 90 cts. Discount to dealers. Send for sample baskets.
MELLINGER, HARROLD & GROVE,
Columbiana, Col. Co., Ohio.

KIND WORDS FROM OUR CUSTOMERS.

I received your A B C book and am very much pleased with it. The book is worth $10.00 to any beginner. C. S. JOHNSTON.
Emlenton, Pa.

C. C. MILLER'S OPINION OF OUR NEW INCUBATOR THERMOMETERS.—SEE P. 297, APR. 15 ISSUE.

Many thanks for the thermometer, which has come in perfect order. You don't know the comfort I feel in owning a thermometer which tells temperature so plainly, and in whose word I can have such confidence. I feel very grateful to you for teaching me the use of wire nails, which are now introduced for the first in the Marengo stores.
Marengo, Ill., May 22, 1886. C. C. MILLER.

A YEAR AMONG THE BEES.

A New Bee-Book of 114 Pages.

Price 75 cents. Sent postpaid by the Author,
1013db **DR. C. C. MILLER, Marengo, Ills.**

DUNHAM AND VANDERVORT FOUNDATION

We have a large stock of choice yellow beeswax, and can furnish Dunham comb fdn. for brood comb, cut to any size, for 40c per lb. Extra thin Vandervort foundation, 46c per lb. We guarantee our fdn. to be made from pure beeswax, and not to sag. Will work up wax for 10c per lb., and 20c per lb. for section. **F. W. HOLMES,**
4tfdb Coopersville, Ottawa Co., Mich.

FOR SALE.—100 colonies of Italian bees, and 200 tested and untested queens.
9-12db E. BURKE, Vincennes, Ind.

SEE WHAT THIS IS.

Two-frame nuclei of the finest strain of Italian bees; combs full of brood, strong in bees, with an extra select tested queen, for $2.50. Three frames, $3.00, or two for $500. The frames are L. size. Satisfaction guaranteed. **J. A. BUCHANAN,**
12tfdb Holliday's Cove, Hancock Co., W. Va.

PURE ITALIAN QUEENS.

100 READY EVERY 30 DAYS.

Untested at 75 cents; 10 for $7.00. Tested queens, $2.00 each. All bred from a selected imported mother. Cells raised in full colonies.
12-16d D. G. EDMISTON, ADRIAN, LEN. CO., MICH.

Introducing Queens.

Henry Alley has given, in the May number of the AMERICAN APICULTURIST, several new methods for introducing both fertile and unfertile queens. Sample copies free. Address

AMERICAN APICULTURIST,
9tfdb **Wenham, Mass.**

STANLEY'S Automatic Honey-Extractor AND DOLLAR SMOKER.

Send for circular and Price list to
G. W. STANLEY, Wyoming, N. Y.

ONE-PIECE BOXES AT $4.00.

I can furnish one-piece boxes, 4¼x4¼x1⅞ wide at $4.00 per 1000; 300, $2.00. Send for sample.
12d J. P. McGREGOR, FREELAND, MICH.

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May 26, 1886. Medina, O.

BEAUTIFUL FOUNDATION

And very choice all-in-one-piece **SECTIONS,** V-groove — wholesale and retail, and exceedingly cheap. Send for Samples and Free Price List of every thing needed in the apiary. 6tfdb
(Near Detroit.) M. H. HUNT, Bell Branch, Wayne Co., Mich.

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

SECTIONS,

$3.50 per M. Dovetailed, all-in one-piece. Send 2-cent stamp for sample. **E. S. MILLER,**
9-12db **Dryden, Mich.**

WESTERN ILLINOIS MODEL POULTRY & BEE YARDS. Premium and imported stock; also Apiarian supplies. Catalogue free. 8-12d L. HORNING, Prop., Malvern, Ill.

ITALIAN QUEENS, untested, May and June, $1.00; six for $5.00; after July 1st, 85c each; six, $4.50; 2-fr. nucleus, untested queen, June, $2.75; after July 1, $2.25. Send for price list of bees by the pound, fdn., etc. JOHN NEBEL & SON, High Hill, Mo.
7-12db

REDUCTION IN PRICES.

We hereby notify our customers that there is a reduction in foundation from the prices quoted in our *March* retail price list. All parties interested will please mail us a card for new prices.

CHAS. DADANT & SON,
11d **Hamilton, Hancock Co., Ill.**

Italian Queens sent by Mail.

Untested queens from imported mother, April, $1.25; May, June, and July, $1.00. After April, per half-dozen, $5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

Foundation-Mill For Sale.

One ten-inch Root comb-mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $15.00. The list price of a new mill of this kind is $20.00. **A. I. ROOT, Medina, O.**

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WANTED.—To exchange pure Italian queens for beeswax at 28c per lb. Queens, select, $3.00; warranted, $1.50. Ship wax by freight to Barrytown, N. Y. Cornelius Bros.,
7 12 db LaFayetteville, Dutchess Co., N. Y.

WANTED.—To exchange 20,000 strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale, 75 cts. per 100; $4.00 per 1000, for bees, foundation, or improved poultry.
10tfdb W. J. Hesser, Plattsmouth, Neb.

WANTED.—To exchange, small-size Centennial incubator, new or second hand, or brooder, for Italian bees, nuclei, or full colonies. 11-12d
James D. Halsted, Rye, Westc. Co., N. Y.

WANTED.—To exchange bees by the pound for fdn., sections, wide frames, or extractor, or imported queen, or for cash. Price per lb., with $1.00 queen, $2.00; with black or hybrid queen, $1.25; without queen, $1.00. Safe arrival guaranteed anywhere within five days' transit. 12d
Luther Purdy, Killbuck, Holmes Co., Ohio.

WANTED.—To sell 150 or 200 brood-frames, worker 19½ by 9 inches. Fit Langstroth hives, and can be used for extracting. Address 12d
Anabel Ronald, Grand View, Ia.

WANTED.—To exchange a lamp-nursery hive, never used, complete, for fdn., sections, or L. frames. C. F. Uhl, 12tfdb
Millersburg, Ohio.

WANTED.—To exchange for foundation, any make, also beeswax, bees or queens. My bees are as fine as the world can produce, are pure Italians and albinos, and are very gentle.
12d Address F. Boomhower,
Gallupville, N. Y.

WANTED.—To exchange for extracted honey, cash or offers, 15,000 pot-grown strawberry-plants of the best varieties; also game cocks and Jersey Red pigs. Can give best reference. 12-13d
Address Geo. M. Wertz,
Johnstown, Cambria Co., Pa.

WANTED.—To buy for cash, from 100 to 500 pieces, either pine, poplar, or basswood, 7 feet long, 3½ inches wide, 1⅜ inches thick, planed all over, with a rabbet taken from one corner 1¼ inches by ½ inch. Who can furnish them? 12-13d
Thos. W. Croacher, New Bedford, Mass.

WANTED.—To sell, after June 1st, 50 3-frame L. size nucleus colonies of hybrid bees, with queens, for $3.50 each, delivered at Plattsmouth, Neb., or I will exchange for young stock, cattle or horses, or apiarian supplies.
12tfdb J. M. Young, Rock Bluff, Cass Co., Neb.

WANTED.—To sell or exchange a farm, 160 acres; good buildings, good soil, good title. All under fence. For sale at a fair price. Address
10d W. B. Brown, Spirit Lake, Dickinson Co., Ia.

WANTED.—To exchange Gale plow, square harrow, subsoil plow, double lead harness, riding-saddle, horse-clippers; also a Stevens 44 rifle and 12-gauge shot-gun combined, for Barnes saw, hives in flat, or offers. Goods shipped from Philadelphia, Pa.
12-13d H. M. Hiespell, Paola, Fla.

WANTED.—To exchange 20 Ideal glass-front veils for queens sent now. Jno. C. Capehart,
St. Albans, W. Va.

WANTED.—Cash for Root foundation, L. size or less. Surplus, 55c; Brood, 45c. 12d
W. H. Upton, Loveland, Potta. Co., Iowa.

NOW READY.

TERRY'S NEW BOOK ON

—THE—

WINTER CARE

—OF—

HORSES & CATTLE.

THE MOST HUMANE

—AND—

PROFITABLE TREATMENT.

Although the book is mainly in regard to the winter care of horses and cattle, it touches on almost every thing connected with successful farming—shelter, comfort, feeding, exercise, kindness, different sorts of feed, with a full treatise on the most economical way of saving manure. A full description of the model barn is given, as shown on p. 396.

PRICE 40 CTS.; BY MAIL, 43 CTS.

A. I. ROOT, - MEDINA, OHIO.

GOOD NEWS FOR DIXIE!

SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

CARNIOLAN ✣ QUEENS.

Fertilized in my apiary of 100 colonies. Carniolan bees, "untested" queens. Safe arrival guaranteed. $1.00 each; six, $5.00. 12d

DR. S. W. MORRISON,
Oxford, Chester Co., Pa.

$2.50 CHEAP $2.50

During the rest of the season I will sell three Simp.-size frame nuclei colonies, all worker comb, with 1 lb. of Italian bees, and nice tested Italian queen, for only $2.50. Safe arrival and satisfaction guaranteed. I have for sale a fine lot of untested queens at 75c; tested, $1.00. Send for circular.
12-13d F. W. MOATS, THE BEND, DEFIANCE CO., OHIO.

TEN COLONIES OF ITALIAN BEES IN LANGSTROTH HIVES AT $7 EACH.

Every colony contains five frames of brood.
11-12d **M. ISBELL,** Norwich, N. Y.

FOR SALE. Six hives of Italian bees in Simplicity hives; bee-material, etc. Will be sold cheap. Address T. E. Hanbury,
12d Atlanta, Ga., P. O. Box 98.

Italian, Holy-Land, and Syrian.

	June	July	Aug.
Italian, from imported mothers,	$1.00	.75	.75
Holy-Land and Syrian, from S. T.	1.00	.75	.75

Tested, double above prices. P. O. notes payable at Chesterton, Ind. Circular free.
11-12d N. E. COTTRELL, Burdick, Porter Co., Ind.

CELERY PLANTS!

Henderson's White-Plume Celery, and new apple-shaped Celeriac, at 25 cts. per 100, or $2.00 per 1000.
11-12d F. HOLTKE, Carlstadt, Bergen Co., N. J.

CHICKENS. S. S. Hamburgs, B. Leghorns, P. Rocks; eggs, $1.00 per setting for the rest of the season. Fowls for sale.
A. H. DUFF, Creighton, Ohio.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

OFF-COLOR ALBINOS!

Friends, I shall have a good many Albino queens this summer through, which, when tested, will not come up to the standard for which I shall breed in stocking up my 60 colonies. *These* tested queens, which will be good, but off colors, I will sell for 50c. each. Those wanting, send orders and I will fill as I have them to dispose of. **ABBOTT L. SWINSON,**
Goldsboro, Wayne Co., N. C.

I have made arrangements to supply about 25 black queens this month. Those wanting them can have them for 25c each, or 5 for $1.00. Order at once. **A. B. JOHNSON,** Clarkton, Bladen Co., N. C.

Having 30 hybrid queens I will send them to the friends for 50 cts. apiece, by return mail, this month. These queens were all raised last year, and from best imported and select tested queens. Postage-stamps accepted. Address **JNO. A. THORNTON,**
Lima, Ills.

Black and hybrid queens at 25 cts. and 40 cts. apiece. **GEO. D. RAUDENBUSH,** Reading, Pa.

Choice hybrid queens for the next three months, 25c. now. Safe arrival guaranteed. **G. S. FOX,**
Mitchellville, Iowa.

Friends, I have 30 black queens that I will take 25 cts. each for, or 5 for $1.00. Ready to ship now.
RICHARD MCBRIDE, Ammon, Bladen Co., N. C.

I have some mismated Italian queens that I will sell at 35 cts. each; pay for them when received. Can get black queens at 25 cts. each.
W. A. SANDERS, Oak Bower, Hart Co., Ga.

I have ½ dozen or more hybrid queens of last year's raising for sale, at 35 cts. each, ready to mail on receipt of order. **O. H. TOWNSEND,**
Alamo, Kal. Co., Mich.

Hybrid queens from pure mother, 50c; blacks, 25c.
W. T. LYONS, Decherd, Tenn.

WANTED.—A partner to take half-interest in an Apiary, with a little capital. Address
LOUIS WERNER, Edwardsville, Ill.

SURE TO SEND

FOR MY NEW

PRICE LIST FOR 1886,

Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb

A. B. HOWE, Council Bluffs, Ia.

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ONLY ITALIANS

Untested, in May, $1.15 each; $12.00 per doz.
" " June, $1.00 " $10.00 " "

Tested, $2.50 in May; $2.00 in June and after. Dealers, send for special discounts on dozen lots or more. Safe arrival guaranteed. **W. J. ELLISON,**
10-12d **Stateburg, Sumter Co., S. C.**

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WEEKLY, $1.00 PER YEAR.

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The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

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Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
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Headquarters in the North.

Steam factory, fully equipped, running exclusively on *BEE-KEEPERS' SUPPLIES.* White-poplar and basswood one-piece and dovetailed sections. Vandervort thin foundation. Send for free samples and illustrated price list.
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APIARY FOR SALE.

90 COLONIES, in splendid condition; 20 acres land, large new frame house, 70 new hives, 12,000 4¼x4¼ sections, tools, etc. One of the best honey-producing localities in the State of Iowa. Immediate possession. **C. A. SAYRE,**
10tfdb **Sargent, Floyd Co., Iowa.**

QUEENS, 1886. UNTESTED,

From select imported mother. After May 15, $1.00. Wax worked into fdn. for a share, or by the pound. Satisfaction guaranteed. **THOS. & BENJ. YOUNG.**
10-15db LA SALLE, LA SALLE CO., ILL.

BEE-KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, 48 pages; **FREE** to all bee-keepers sending address to
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BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
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Batchelder's Drone and Queen Trap

Is the only one made that does not hinder the bees in their work. Send 85 cents for sample. Send for circular, and see what A. I. Root says about it.
10tfdb **J. A. BATCHELDER, Keene, N. H.**

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CITY MARKETS.

ST. LOUIS.—*Honey.*—We quote honey very dull. Nearly all offerings are of old stock, which is hard to place, even at low prices, as follows:

Old strained, in bbls. and kegs,	3@4c
" extracted " " " "	4½@5½c
" " " cans,	5@8c
" comb, broken,	5@7c
Choice cap,	10@12c

There is a fair demand for choice and fancy new white clover, in 1-lb. caps, at 13@15 cts. *Beeswax* has good demand. Selected yellow, 22½@23. Prime, 22, dark, 18@20.

With the present low prices on all kinds of products, we can not look for high prices for the product of the busy bee. W. T. ANDERSON & CO.,
June 12, 1886. 104 N. 2d St., St. Louis, Mo.

MILWAUKEE.—*Honey.*—Honey is in only moderate demand for comb in sections, and the supply limited. Extracted, ready sale on arrival, at prices according to quality and quantity. Quote choice 1-lb. sections, 16@17c; choice 2-lb. sections, 15@16. Extracted, in bbls. or kegs, 6@7½. *Beeswax* wanted, 24@25c. A. V. BISHOP,
June 11, 1886. 142 W. Water St., Milwaukee, Wis.

CHICAGO.—*Honey.*—Very little comb honey here at present, and none of the best grades of one-pound combs; we expect to have some of the new crops soon. Extracted is without change of any kind. *Beeswax* scarce at 25c. R. A. BURNETT,
June 10, 1886. 161 S. Water St., Chicago, Ill.

DETROIT.—*Honey.*—No honey in market to quote, and but little wanted. Fruit seems to take its place at this time of the year. *Beeswax*, firm at 25c.
June 11, 1886. M. H. HUNT,
Bell Branch, Mich.

CLEVELAND.—*Honey.*—The demand for honey has fallen off very rapidly since our last report, owing, undoubtedly, to the near approach of the new crop. Prices are nominally unchanged. Choice white 1-lb., 14 c; 2-lbs., 12c. *Beeswax*, 25.
June 10, 1886. A. C. KENDEL,
115 Ontario St., Cleveland, Ohio.

ITALIAN QUEENS

TESTED, $2.00; UNTESTED, $1.00.

MISS A. M. TAYLOR,
12tfdb MULBERRY GROVE, BOND CO., ILL.

QUEENS, BEES, AND NUCLEI, AT REDUCED PRICES.
11-16db GEO. D. RAUDENBUSH, READING, PA.

600 LBS. OF BEES ON HAND YET.

Bees, $1.00; queens, black or hybrid, when I have them, 35 cents. Queens raised from imported mothers, after July 1, 65 cts. by mail; 50 cts., with 1 lb. of bees by express, charges paid by me, as in May.

THOMAS GEDYE,
12tfdb **La Salle, La Salle Co., Ill.**

SIX WARRANTED ITALIAN QUEENS for $5.00; twelve for $9.00. Single queen, $1.00. Tested, $1.50 each. Simplicity sections, $3.75 per 1000, first quality. I. R. GOOD, Nappanee, Ind.
12tfdb

FOR SALE AT COST.

200 1½-story Simplicity hives in flat; 40 one-piece one-pound sections; 75 one-piece 2-lb. sections, size 5¼x6; 10 brood-frames, V-shape; 5 broad frames for sections; 200 1½-story Simplicity hives, nailed and painted. Address R. L. SHOEMAKER,
12-13d Newcomerstown, Tuscarawas Co., O.

SYRIAN QUEENS by return mail, tested, $1.50; untested, 75 cents; twelve for $8.00. **ISRAEL GOOD,**
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CARNIOLAN QUEENS.

Having located an apiary of this new race of bees in an isolated place, surrounded by high mountains, where a honey-bee was never seen until we placed these there, we have two of the finest queens Mr. Benton could furnish to breed from, and can furnish queens of undoubted purity at the following prices:

June 1, Queen,	$3 50;	½ dozen, - - - -	$18 00
July 1, "	3 00;	" " - - - -	15 00
Aug. 1, "	2 50;	" " - - - -	12 00
Sept. 1, "	2 25;	" " - - - -	10 50

ITALIAN ❋ QUEENS

of the best strains, bred in a separate apiary, 40 miles distant, warranted purely mated:

June 1, Queen,	$1 00;	½ dozen, - - - -	$5 00
July 1, "	1 00;	" " - - - - - -	5 00
Aug. 1, "	1 00;	" " - - - -	4 50

Address **J. B. MASON & SONS,**
MECHANIC FALLS, ME.

By Return Mail.

Select tested queens, each, - - - - -	$1 50
Warranted queens, " - - - - - -	75
" " per doz., - - -	8 00
Strong 3-frame nuclei, L. frames, each, - -	2 50

Address **JAMES WOOD,**
12d **No. Prescott, Mass.**

UNTESTED Italian queens, reared under swarming impulse, $1.00 each; 6 for $5.00. Tested, $1.50; 3-frame nucleus and queen, $2.50. Full colony in one-story S. hive, after July 1, $5.00. Safe arrival guaranteed. F. S. McCLELLAND,
12d Box 379, New Brighton, Beaver Co., Pa.

A BARGAIN FOR SOME ONE.

$75.00 will buy 15 vols. Encyclopedia Britanica, library leather binding, and contract for remaining 6 vols.; cost $6.00 per volume.
12d Address C. H., care GLEANINGS.

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Choice tested Italian queens, reared from a select imported queen, Root's importation, $1.50 each. Warranted, $1.00 each; six for $5.00. Albinos same price as Italian. Safe arrival and satisfaction guaranteed. Make money orders payable at Salem, O.
F. H. SCATTERGOOD, P. M.,
12-13d **Winona, Ohio.**

ITALIAN BEES.

As I have not reduced my stock as much as desired, I offer full colonies at $4.50. *Satisfaction and safe arrival guaranteed.*
12d **E. A. GASTMAN, Decatur, Ill.**

SPECIAL OFFER.

After this date I will furnish untested queens for 75 cts. each, $4.00 per ½ doz., or $7.50 per doz. Tested, $1.50. Warranted queens at $1.00; 2-frame nuclei, with untested queen, at $2.00. Ref., A. I. Root.
Address A. B. JOHNSON,
12d Clarkton, Bladen Co., N. C.

Good Luck.

Trout, bass, pike, pickerel, or any fish that will take an artificial bait, can be caught by using my new trolling spoon, sent on receipt of 25 cents; also 600 feet of linen trolling line, for one dollar; 216 feet linen pole line for 30 cents. Trout-hooks to gut, ten cents a doz.; large hooks for bass, pike, and pickerel, doubled gut, 20 cts. per dozen.
C. H. WILCOX,
12d Earlville, Madison Co., N. Y.

GLEANINGS
IN
BEE CULTURE.
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F.A. Whiting

Vol. XIV. JUNE 15, 1886. No. 12.

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GETTING BEES OUT OF SECTIONS.

ADVANTAGE OF HAVING ITALIANS INSTEAD OF BLACKS OR HYBRIDS.

ON page 393, Geo. A. Wright asks how to get bees out of cases. Now, friend Wright, if you'll promise to say nothing about it I will say to you that I have not yet learned to do it to my satisfaction. But as it is a seasonable subject I will tell what I do know, as some of less experience may be benefited thereby.

There are usually two classes of bees in the sections when opened. There are young bees that are timid, and anxious to get out of the way; and, if I am not mistaken, especially anxious to get away from the light. There are old bees that are not timid; and, unless frightened, prompt to make attack; and, when frightened, eager to fill their honey-sacks. We must take into account these two classes of bees, and act accordingly. If we quickly take off a super, or case of honey, and remove it from the hive without giving the youngest bees time to crawl down into the hive, these latter, not knowing the way back to their homes, are liable to be lost if they leave the sections, and are, moreover, loth to come out to the light, especially as they know of no other place to go. I have seen some of them clustered together 24 hours or more, apparently condoling with one another as to their loss of home and friends. It is best then to give these bees time to crawl down into the hive or super below. I am not sure whether these youngest bees wait to load up with honey before leaving the sections; but the old bees, on being alarmed, start at once for the honey-cells, and no amount of smoke short of actual suffocation will induce one of them to leave the honey-cell into which it has plunged, until its load is complete. So far as the old bees are concerned, I suppose they could just as well fill up after the super is removed; but we want to give the young bees time to get out. If you watch a bee filling itself with honey you will find that it takes the best part of two minutes. Perhaps it is best to allow five minutes after opening the super before removing it. This will be a very slow process if each one is taken separately, so I usually open four or five in succession before removing any. This gives the bees plenty of time to get out of the way, without wasting my time waiting. Each super, on being opened, receives five or ten good whiffs of smoke, and I then pass on to the next, leaving the first entirely open, if there is no danger from robbers. If robbers are likely to trouble, a rubber cloth, or piece of cotton cloth is thrown over. By the time the fourth or fifth is open, the first is ready to remove, after receiving another dose of smoke, or, what is perhaps better, several vigorous puffs of the breath. The super is then carried into a room of the shop, which is darkened all but one window, or hole in the wall, arranged, in the way so often described, so that bees will go out but not come in. If, however, honey is coming in freely it is usually safe to set the super beside the hive and let the bees leave the super entirely before taking in. I have sometimes let them stand so till my forenoon's work was done, and then gathered all up. Close watch must be kept to see that the bees do not begin carrying off the honey. If wide frames with closed top-bars are used, the frames must be separated on first opening, taking out one frame if necessary. It may be objected, that the bees thus left to fill themselves will take just so much honey out of the sections. That is just what I like to have them do, for there are always unsealed cells around the outer margin of a section, and the more honey taken from these the better. The bees will not take the trouble to tear open the sealed cells as long as they can find these unsealed ones. I know I have seen sections so badly riddled with holes which the bees had dug in the sealing as to be unsalable; but I have seen very little of it lately. It may be that it is caused by the bees being panic stricken by too heavy a dose of smoke, making them frantically dig into the first cells they come to; but I think it more likely it is the kind of bees. The blacks are, perhaps, the worst. The obvious remedy is to change the strain of bees. I have doubts whether bees addicted to this habit are desirable in other respects.

FIGWORT.

Once when Prof. Cook honored us with his presence at the Northwestern Convention at Chicago, I spoke discouragingly of my attempts at artificial pasturage. In his mildly deprecating way, Prof. Cook begged me not to throw cold water upon the project; and although my efforts have mostly ended in failure, I am not without hope that some progress may be made. In my last article in GLEANINGS, I recounted my virtual failure with an acre of figwort. Well, I have just been down to look over that ground. Neither plow nor hoe has been struck in it since the summer I planted the figwort. I am very glad now to be able to give an encouraging word. Where the figwort stood there was no sign of a plant to be seen this time last year; but now a good many plants are to be found, which, although neither large nor strong looking, give hope that a self-supporting stand may be secured. But for the space of three rods east of the figwort patch, the ground is well covered with strong vigorous figworts, which gladden my eyes. These came, undoubtedly, from seed blown from the old plants, and I have some hope of living to see a five or ten acre field well covered with a mixture of figwort and melilot. I bought and gave away this spring several hundred basswoods.

C. C. MILLER, 340—222.

Marengo, Ill., June, 1886.

Friend M., your suggestion, that the race of bees has much to do with it, is a valuable one. I remember of having a colony of hybrids that I wished to requeen because they were so extremely ugly. Well, they had what I considered a very fair amount of sealed stores for winter; but after swarming them and looking the hive over two or three times to find their hybrid queen, they had uncapped and gorged themselves with nearly all sealed honey from the hive. Instead of putting the honey back in the cells and sealing it up they built new combs in several parts of the hive, and in this way used up and wasted a good many pounds. The kind of hybrids that run all over the combs, then collect on the lower corner, and drop off on to the ground, are the kind that dig open the honey-cells whenever the hive is opened. I do not believe it pays to have such bees in the apiary.—In regard to figwort, I have just found one single plant in our plantation, that was covered with blossoms filled with honey the first of June.

A VISIT TO BEETON.

Friend W. F. Clarke Tells us what is Going on There.

NO "HIBERNATION" AT BRO. JONES'S.

IT is four years or more since I was last in Beeton, until the other day, when I fulfilled a long-cherished intention of again visiting that now renowned spot. How rapidly time flies! During the interval I have emigrated to Winnipeg and returned, bringing home with me the rheumatism, which is the plague of my life. Our bee-circles have been enlivened with the pollen, reversible-hive, and hibernation theories. A new hive and a new system of bee-manipulation have appeared on the scene. A fit of authorship has seized on "severals" of us; e. g., Rev. W. Ballantine, J. Heddon, Mr. Alley, Dr. C. C. Miller, and, finally, on myself. This was the immediate cause of my trip to Beeton. I went there to arrange for getting out my "leedle" book; but as I have disposed of the copyright to Jones, Macpherson & Co., I can leave the *Canadian Bee Journal* to introduce my literary venture, "A BIRD'S-EYE VIEW OF BEE-KEEPING," to the apicultural public.

Beeton has not been at a standstill during these four years. The village is improving much. More tasty buildings, shade and ornamental tree planting, and the adoption, on the part of the county, by local option, of prohibition, are conspicuous evidences of progress. Our friend Jones has not been idle. A better house and larger grounds give scope for his own æsthetic predilections outside, and those of his wife, who is quite an artist, inside. A big job of evergreen planting was on hand at the time of my visit. I never saw so fine a lot of spruces as those Mr. Jones was transplanting, by the hundred, from their native woods, about six miles off. Now for the first time he is fixing up the home apiary; and when it is finished it will be the envy and delight of all apicultural visitors. The shelter will be complete and the protection perfect. It will be the paradise of outdoor wintering and—*hibernation!*

Even more enlargement and improvement are visible around the factory and offices. The machinery for manufacturing hives and various bee-keeping appliances made of wood seems as near perfection as it can be. Driving force is furnished by an 80-horse-power steam-engine, which is itself a very superior piece of workmanship. I did not know saws could do such fine and smooth work until I saw them at it the other day. No need of any planing after the material leaves the little buzzers that run with almost lightning speed. The accuracy with which the various operations are performed, and the close fitting of the parts (dovetailed brood-frames, even, requiring neither glue nor nails) filled me with admiration at the pitch of achievement which has been reached by the ingenuity of man. All hands were busy putting up 500 of the new-style Heddon hive, which is going to get a fair and thorough trial the present summer by Canadian bee-keepers. Fifty had already been shipped to Mr. J. B. Hall, and Mr. Jones intends to use that number, at least, himself. He is making them of thinner material than Mr. Heddon does, and they are certainly a marvel of lightness combined with strength. While retaining the principle and general style of construction, some modifications are being introduced, which I think the inventor will own to be improvements when they are subjected to his inspection. It would take too long for me to go into further detail as to the manufacturing department of this great establishment; suffice it to say, it appears to be very completey equipped, as it may well be, since here are from $25,000 to $30,000 invested in buildings, plant, lumber, and other material. The tin-shop, offices, wax-room, store, and show-rooms are somewhat scattered around at present. All these are to be combined in one large brick building, soon to be erected, in connection with the factory.

Meantime the practical part of bee-keeping is receiving full attention. Besides the home apiary I visited two of the out-lying yards. All are in excellent condition, and awaiting the arrival of the busy season, "ready, aye, ready," to gather in tons of stores as soon as they are to be had. Mr. Jones is perfecting a new system of queen-rearing, of which I am not at liberty to speak in detail. It is going to revolutionize that branch of bee-keeping, and make it "as easy as rolling off a log" for bee-keepers to have on hand at all times a full supply of laying queens. The cost of production will be so cheapened, that we shall smile at the old idea of dollar queens! Thus, all things tend to lower the cost of honey. 'Tis well; for we have not only to drive glucose and other vile adulterations out of the market, but enthrone honey here as the queen of sweetness, both in quality and price. Mr. Jones is also working hard at the devolopment of his plan for obtaining *Apis Canadensis*—the coming bee—by a judicious combination of the best qualities of several races. Operations on the Georgian-Bay Islands will probably be suspended the present summer, as Mr. Jones expects to go to England in August, he being one of the commissioners in charge of the Canadian exhibit of honey at the great Colonial and Indian Exhibition, which is now in full blast at Kensington. So soon as this season's crop of honey is gathered, the best of it, in the most attractive packages, is to be sent to this great show, in charge of five commissioners, by whose patriotic endeavors we expect to have a market opened for our honey product in Great Britain, which will give us a constant outlet for our surplus at good figures.

Mr. Jones's many friends will be sorry to learn that he suffers occasionally and acutely from an ophthalmic affection contracted during his tour in Oriental lands. He had a touch of it while I was at his place, and it evidently causes much pain and annoyance. Total rest of the eyes appears to be the only source of relief, and this is not easy for one who has literally so many things to "see to." He has, however, a most valuable and efficient coadjutor in his wife's nephew, Mr. F. H. Macpherson, who is now his partner and general manager. Mr. Macpherson is an excellent practical printer, as is manifest from the style and appearance of things in the office under his control. Besides the *Canadian Bee Journal*, the *Beeton World*, a local paper with a considerable circulation, is printed and published here. There is also a large and increasing job business. A press of greater speed and capacity is about to be set up, in order to overtake the accumulating amount of work.

Mr. Macpherson is on the eve of following Ernest's example in the way of swarming off and installing a domestic queen. He is fortunate in having "the leafy month of June" for the wedding-trip. I bespeak for him and his bride the hearty congratulations and good wishes of all who read these lines, and I feel sure that all will join me in wishing the happy couple joy of their union, and many long years of conjugal bliss. W. F. CLARKE.

Guelph, Ontario, Canada, June 1, 1886.

Why, friend C., your description almost makes us feel as if we were on the grounds, and catching the infection of so much business, and of a business, too, that is so widespread in its nature that it catches on to almost every land and clime where honey-bees find a home.—We regard it a privilege to be able to say God-speed to friend Macpherson and his bride. I had a short acquaintance with him, and an opportunity for a little talk, during my visit in Toronto, and I was pleased to note that he is business, every inch of him, and a man who is well up with the times, and capable of grasping the great important points of this busy world as it is spread out before us.—I am very sorry for friend Jones's affliction, and it must be an affliction in good earnest if it is something that he does not turn off with a laugh, as he does almost every thing else. How I should like to see him in his busy field of work! I am afraid, however, that the building of our own factory, consequent upon the fire, will again postpone the visit I had proposed making this coming fall.

PROSPECTS FOR THE SEASON EXCELLENT.

GOOD POINTS IN FAVOR OF SPANISH-NEEDLE HONEY.

YOU tell us not to write any thing on the subject of wintering just now, and we must obey, I suppose. I will say nothing about it, except that I came through with 57 out of 60 stands, 50 of them good ones, and that I experimented some with absorbents and no absorbents, which did not quite satisfy me. I intend to make a more thorough test of that next winter. The three stands that I lost became queenless, and I simply united them with others.

This spring, especially April, has been the most favorable vernal season I have had yet. This is my fifth season in apiculture. Gooseberries blossomed almost a week sooner than usual; apples ten days sooner, white clover was about two weeks sooner, and I was quite surprised to have a swarm May 18th, some twenty days earlier than I have ever had one before. My prospects are all excellent, although, while the meadows are white with clover, not much honey seems to be coming in. The weather is favorable too. I do not know how many swarms I might have had, had I not forestalled them and swarmed them myself.

SPANISH-NEEDLE HONEY.

I was much interested in Mr. Andrews' article concerning Spanish-needle honey, on page 357. I quite agree with him concerning the points of this excellent honey. It is the richest honey stored in this region. What little I get of it I like to put aside for my own use. Its dark color is no detriment to its sale where it is known, and a great many folks around here know its good qualities too, and prefer it to any other. It is much less apt to sour than white-clover honey; but when extracted, if it does not granulate it tends to acquire a strong, unpleasant flavor. In the comb it retains its fresh flavor better than any other gathered around here. As for wintering bees on it, in spite of all that the books and journals teach about the dangerous qualities of late stores, I can not see but that it proves as wholesome as any gathered early in the season. I have wintered bees well on stores gathered almost wholly during the last half of September. My great misfortune is, that although there is a great deal of Spanish-needle blossom, because of cool or dry weather but little surplus is obtained from it. GEO. F. ROBBINS, 69—57.

Mechanicsburg, Ill., May 25, 1886.

Friend R., what you say about Spanish-needle honey reminds me of an incident of nearly two years ago. I purchased quite a lot of this honey from friend Andrews. He did not tell us what the source was, and I pronounced it a splendid article of goldenrod honey. The color was dark gold, and the flavor excellent, and the body so dense as to give point to my little story. A man ordered a 100-pound can of goldenrod honey. We sent him this, supposing at the time, of course, that it was genuine goldenrod of superior quality. He did not respond according to promise; and when we succeeded in making him answer, he said the honey was poor, and that he could not sell it. We at once told him to return it. Finally it came back. But imagine our astonishment, after unsoldering the tin that held the cork in, to find nothing but water, slightly sweetened, in the can. As the bottom of the can seemed quite heavy, however, we poured the water off and found 42 lbs. of this thick heavy honey uninjured. Our friend had supposed the water would so mix with the honey during the transit that it would sustain his claim that it was a poor article; but as it was in the winter, he missed his calculation. The heavy body of the honey prevented it from mixing. I demanded pay for the honey he had sold out of the can. He denied the charge, and we had to employ a lawyer to make him pay for his attempted swindle. He finally did pay, but it took all of the money he handed over, to pay the lawyer. Now, lest this man should try to serve some of the rest of the bee-friends the same trick, we give his name and address here: E. W. Bramen, Geneva, Ashtabula Co., O. When I met friend Andrews at the bee-keepers' Congress in New Orleans, he told me he was satisfied the honey was from Spanish needle. I agree with you, that it should be ranked as one of the finest, if not the *very* finest, source of dark-colored honey.

THE BEES AND THE NEIGHBORS.

FRIEND DAYTON CONSIDERS PRETTY FAIRLY THE SITUATION FROM DIFFERENT POINTS OF VIEW.

THE description of the "mill" I passed through some time ago, and a few things I learned while there, may not seem superfluous. I agree with many who have written before me, that some people are surprisingly nervous and jealous when they have a bee-keeping neighbor, and the more so if he is successful. A sure way to please them is to dig stumps and pull weeds for a livelihood. It seems to be a bee-keeper's destiny to get between neighbors who are bound to wedge him and his so as to come within "hands' reach" of each other. This state of affairs exists more or less everywhere; but they do not report so much as bee-keepers do. But there is a possibility of two sides to this question. If the bees are situated on a level within 200 feet of the neighbor, and there is nothing intervening, they may trouble him considerably. If they are within 30 feet, and a hedge is near the hives, and a dense row of trees near the hive, the neighbor probably would never be troubled.

To make it dangerous because of stings, outside of the apiary, we may place trees and tall obstructions among the hives. To throw the danger inside the apiary, set the trees on the outside. Wherever we furnish the bees a playground, there is also a place they are going to defend. There always is a place in or near every apiary, clear of obstructions, that the bees are going to occupy for the purpose of flying, and we must surrender it to them or suffer the consequences. By contrivance, and sometimes without contrivance, we may throw their playground in different directions, and it may be into a neighbor's garden.

My apiary is in the village, with four rows of trees as described, and they can find no fault with the bees, and have despaired in the undertaking. One season before I set out the trees, out of 92 swarms 4 were drifted by the wind on to my neighbor's premises. He tried to act wild at the damage they were doing in clustering on a fence-post 5 feet from the line, though in the evening his hogs were digging my potatoes. He would not allow their removal with the swarming-box, though it could be done from my side of the fence. Unknown to him, I rubbed the cluster so harshly with the box that the bees drove him into the house, and I had matters in my own hands. When I found out this state of affairs, I clipped the queen's wings; but a second swarm, with a virgin queen, got away and went over. I asked a justice to get them, and in a berating manner he told me to tender the neighbor a quarter in case of trespass, and take them without ceremony. As I considered a "lean compromise better than a fat lawsuit," the neighbor hived and fed them for winter, but they died because of a lack of upward ventilation.

For two years I rented a part of my house to families to show the neighbors how dangerous the bees were, and they hitched teams within 15 ft. of the rows of hives, hundreds of times, and, fortunately, there was no one stung during the time. The secret lay in a thick row of bushes intervening.

Since the trees I planted began to cast sizable shadows, the neighbor informs me that if I will move the trees I am welcome to come after swarms. The trees may be trimmed; but if they are removed entirely, I fear it will soon be, "Move your bees or we'll move them for you." "Who sows brambles should not go barefoot."

There are many other neighbors who appear to be glad to take swarms from their own trees and bring them to me, and are frequently boasting how they can go in and about the apiary without molestation by bees. When the hives are set close to a fence, and there are trees on the inside, the bees will be caused to go over the fence in their flights. If the hives are located under our trees, then the bees become accustomed so as to follow and search under trees to sting.

Again, when we establish an apiary among neighbors, and provide no trees or high fences to raise the bees high in the air in their flight to and fro, the continual passing becomes a real annoyance. Persons who are not used to the handling of bees would regard their chances of harm about as a bee-keeper would so many flashes of lightning; and though he may never get stung, he will carry fear with him as though it were a heavy weight; and, being a very peaceable neighbor, he will say nothing but wish himself a thousand miles from an apiary. Hence, in locating an apiary the hives should be placed in a clear open space in the center of a dense grove of trees, that they can not be seen or heard. Then when the "chronic growler" finds them in mischief he will not be so hasty to declare evacuation, but he will be awakened to the fact that there are bees in the neighborhood, and will set out to line them home and will figure *damages*.

We should manage to keep our bees from stinging any one outside of our inclosures, and then they can not very well become a nuisance. If there were a dozen cider-presses, groceries, or other places of business, and all were obliged to be exposed to the bees, and there were enough bees to monopolize matters, then the bees might become a nuisance, and their removal might be necessary. There is an exceptional raid made upon somebody's meal, rain water, sap, cider, or kitchen; it can not amount to more than an ordinary damage, and ought to meet an easy and ready settlement. When a neighbor's poultry or stock plunder the property of another they don't cry, "Git for the timber" or back fields, because they know the laws respect poultry and stock, and our country is proud of them; and it is going to be the same with bees as soon as people can be taught their usefulness, and that they do not "work for nothing." So long as we can succeed in selecting intelligent officers, the law is not going to "throw down and drag out" respectable industries for trivial offenses.

There are those whom the sight of a few bee hives affect as an "eyesore," though they reside many miles away; who may talk, as it is cheap, and their stupidity allows their ignorance to lead them to law without a case. Having a neighbor of this "stamp," it is not best to "pull up stakes" to settle down by another; but while he "blows" we should endeavor to clear the way by our works and acts, that others may see that there are some fools yet living.

It has been advised to entice tranquillity by giving sections of honey, etc.; and I am not certain but the effect, when given to a good neighbor, is the most advantageous—making them so loud in our praise that the enemy is glad to retire for his own safety.

The inquiry is often made, whether there is any law regarding bees, to which I might say that there is none, other than what is in harmony with the reason of the case, and which is often greatly varied by the designs and reasoning power of the reasoner. When bees begin to play their part in the courts, then will the law regarding bees develop. Out in California, Mr. Bohn was brought to law for damages done by his bees to grapes. Eye-witnesses testified and swore that the tongue of a bee was so constructed as to pierce the skin of a round grape, and Mr. Bohn was beaten. If the same were said of a cow's tongue piercing a sound squash, it could not be more absurd. That is the kind of material hurled at the bees, when their side is not well represented; and of just such bricks as that will the wall protecting bees be constructed, unless bee-keepers wake up and exert themselves in their interests. At present I know of nothing better through which to act, than the "Bee-Keepers' Union." In fact, I do not know but that that organization is doing as well as could be desired, except that its short roll of members should be lengthened. With ample backing, cases may be won, leaving "marks" that shall ever be pleasing to ourselves and the rising generation. For awhile, bee-keepers have the opportunity to effect laws in their favor; but a superfluity of drones may alter results surprisingly. C. W. DAYTON.

Bradford, Iowa.

Friend D., I quite agree with you in regard to the advantages of a barricade in the shape of bushes, trees, or a tall tight board fence. I have been advising the same thing for some little time back; but you seem to have gone over the ground more thoroughly in your past experience than I have done. I do not believe that, as a rule, it is best to purchase the good will of our neighbors by gifts of honey. If they have sustained damage, for instance where clothes are so badly soiled on washing-day that they have to be rinsed over, I would send over honey enough to pay them well for the time occupied in making good the damage; or I would in any case be liberal with honey or money either, where it would help to make permanent pleasant relations between ourselves and our neighbors.

It has been suggested that the whole matter comes in under about the same aspect as the keeping of poultry. Chickens frequently do a vast deal of mischief, and make untold annoyance. How can it be got along with? I suppose you know there are various ways. A Christian man (that is, one who *is* a Christian—mind, I do not mean one who professes) will either shut up his chickens or move them away when he is satisfied they are annoying his neighbors. Our nearest neighbor is a good old lady who lives right across the street, all alone by herself. Well, her chickens showed a fondness for promenading on our sawed-stone flagging across the lawn. We did not mind so much the presence of the chickens as the presence of something which didn't go by scaring so readily as they did. In fact, it took a scrub-broom and bucket of water to restore the appearance of things. Well. when our neighbor found it out (we didn't tell her of it — she was bright enough and kind enough to notice the trouble her chickens were making us) she said at once she would sell the chickens, and asked me if I would buy them. She did not put it in just so many words, but it amounted to this: If chickens make my neighbor to offend, I will keep no chickens while the world stands. I have remembered this kindness many times. She is alone in the world, and no doubt her chickens were a good deal of company and comfort to her; but off went their heads just as soon as she found they troubled us. May God bless good old Aunt Margaret! I wish there were more Christians like her, even if she does belong to the Catholic Church.

SOMETHING FURTHER IN REGARD TO THE STRANGE FACT GIVEN ON PAGE 422.

A SUGGESTION IN REGARD TO GETTING SWARMS TO LOCATE IN A PARTICULAR LOCALITY.

I RECEIVED your letter, but did not understand it exactly. In consequence of sickness and other troubles I have not been able to write sooner to ask if you ever published an answer to my request. In the meantime, more bees have arrived to reinforce those already here, and I am in sore distress. I don't know any one who will take out the bees now, and, unless I know what to do to prevent the return of the bees, the expense is too great for me to undertake it.

Be so kind, if you ever publish any thing that will help me at all, as to send me the copy of GLEANINGS containing it? I shall be glad to know the scientific fact I furnished you. C. T. FENWICK.

West River, Md., June 1, 1886.

It seems from the above that still more bees have arrived to reinforce those having already taken up their abode in our friend's house. Now, is there not some bee-keeper near West River who can look into this matter and tell us more about it? It is rather far away to send one of the editorial staff of GLEANINGS to look up the matter, but I am afraid we shall have to do it, if no one else volunteers, somewhere in that vicinity. Be of good cheer, my friend, and let the bees come—the more the better, and we will pay all expense and trouble they make.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.

THE GOLDEN BEE-HIVE, AGAIN.

THE "Golden" bee-hive agents are canvassing Breckenridge and adjoining counties, selling rights for districts and counties at terrible rates. One Charles Hardaway, of Breckenridge, gave $300 for a right for a very small district. I do not know the traveling agent's name, but will find out. I understand that there is one A. J. Carman, of Connecticut, with them. Said Carman is paid a salary of $2.00 per day to canvass the county. Will you please post me in regard to the hives and patents? If you have had any deal with A. J. Carman, please report to me. I think we had better have some advertisements struck off in large letters, to post up, in order to guard honest bee-keepers against such swindlers. H. W. CARMAN.

Custer, Beckenridge Co., Ky., May 11, 1886.

Friend C., we know nothing of the parties you mention. The Golden bee-hive has been for years used as a medium for frauds. I do not think it worth while to inquire whether there is a valid patent on it or not, for it is quite certain that no intelligent bee-keeper wants any such arrangement. I would advise bee-keepers to have nothing to do with any man who comes along wanting to sell rights for a bee-hive or any thing else; and in most localities the whole business has been recognized as behind the times, and beneath the notice of any intelligent man who reads the papers.

FRIEND PORTER'S REPORT.

CAPPING COMB HONEY WITH YELLOW WAX; QUEENS DEAD IN THEIR CELLS, ETC.

REPORTS from Virginia as to honey are not encouraging. With a very fine growing season, there is not the usual secretion of nectar, and the honey-crop will be light. Fruit-bloom and locust were very abundant, the latter always indicating a fruitful year. Fruit of all kinds promises to be abundant, and we are now shipping cherries to New York.

Last year I was annoyed to find some of my best colonies capping all their section-honey with yellow wax, as bright as new foundation. What is the cause? It was not pollen-stain, and as others at the same time were capping with white wax, it could not be the quality of nectar that developed the yellow wax. I should like to ask if any others have had such experience. I conclude it is a trait that certain bees may possess, just as some do that of sealing without an air-chamber under cap, which causes the dark appearance of some combs.

A peculiarity of this season here, is the failure of queen-cells. Never before have I seen so many dead in their cells. Scores of full-grown larvæ in capped cells have been found dead, and all were developed under the swarming impulse. I have examined many hives after first swarms have issued, and found perfect cells with lifeless queens. Can any one give a reasonable hypothesis? I know of no unusual electrical conditions. The colonies were very strong. Two young swarms, after hiving, have been found queenless. This may have been accidental; but the same causes that destroyed life, may have weakened the vitality of the hatched queens.

Blue thistle is now coming into bloom, and is a valuable honey-resource here. Red clover is always very abundant, and we await the development of the "clover apis" with much interest.

J. W. PORTER.

Charlottesville, Va., June 2, 1886.

Friend P., I do not know that I ever before heard of a yellow capping to comb honey. I am inclined to think the trouble with your queens is only accidental, and that it will right itself very soon. If it should be some malady it would be a rather sad case; but we trust not, however.

CARD OF THANKS FROM MR. HEDDON.

FRIEND H. TELLS US HOW IT AFFECTED HIM WHEN HE FOUND HIMSELF PICTORIALLY EXHIBITED.

MY surprise on opening the June 1st number of GLEANINGS can be better imagined than told. I little expected to find myself so conspicuously and pictorially exhibited, or to read the kind and too flattering things written about me by my biographer, Prof. Cook. It would be the worst kind of affectation to pretend that I am indifferent to the honor done me by friend Root, or untouched by the generous things said of me and mine by friend Cook. I most sincerely thank them both; and while I honestly say I have tried to be and to do what the biography gives me credit for, I am but too conscious of having come far short of my ideal. It will be my aim in the future more faithfully to realize that ideal, more fully to deserve the esteem of my friends, and more efficiently to labor for the advancement of apiculture. The tokens of respect and appreciation which I have received will not fail to have an influence in spurring me on toward the attainment of these ends. JAMES HEDDON.

Dowagiac, Mich., June 4, 1886.

DETERMINING THE SEX OF THE EGG.

ALSO SOME OTHER MATTERS.

COOK, Hayhurst, and others have much to say about queens laying eggs in shallow cells, and cite this as evidence that it does not require worker-cells to produce worker-bees. Now, is there any truth in this? and who is the author of the theory that eggs laid by the queen while she is in a horizontal position with the foundation, impregnates the egg by curving the lower part of her abdomen in such a manner as to bring her spermatheca in the right place to distribute the spermatozoid on the egg in the same way as it is done when laying in a contracted cell?

DO BEES HEAR?

If Marshall Darling, on page 269, had suspended his hives in mid-air, would blasting rocks disturb them? I think that bees do not hear, except by the jarring of their antennæ while they are at rest on or touch something solid.

CAN WE USE WIRE CLOTH OVER THE GRATE OF A SMOKER?

D. McKenzie's fire among his hives, page 268, reminds me of the caution that is required in using a smoker while manipulating hives that are filled with chaff. I protect my smoker by a piece of wire cloth bent over the grate. You will have to take the grate out of the smoker to do this. Bend a piece of wire cloth a little larger than and the same shape of the grate over the grate, and drive it back in its place again. Can't the smokers be fixed in some such way as this before sending them out? We always want to have things safe.

HOW MUCH MOISTURE CONDENSES IN A COLONY DURING WINTER?

I have 40 colonies wintered in good shape in single-wall hives, size 18½×18½ inside, with an upper story filled with leaves. There were leaves also on each side of five to seven frames of bees and honey, separated by two thin (1-in.) empty division-boards. The portico in front was likewise filled with leaves. Between two projecting boards that I have hinged to the back of the hive (used for a comb-holder in summer and for this purpose in winter) I filled with leaves, and covered with my entrance-board one foot wide,made out of clapboards. The cover of the hive is made from clapboards, and shaped like the gable roof of a house. On the inside of one of these covers I tacked last fall a large piece of enameled cloth, having it flap on to the leaves in the upper story in such a manner as to catch the water that would condense on this cloth, and drip down into a cavity made for the purpose. I collected nearly a gill of water in this way in a week's time; then I let it remain through the winter, and in March the combs in this hive were covered with mold, and sugared (away from where the bees were clustered) so badly that the bees would starve before they could eat it; so I am satisfied that, if dampness does not hurt the bees, it injures the honey. This water must have run off from this enameled cloth. The hives were ventilated like yours.

J. L. HYDE, 40—40.

Pomfret Landing, Conn., April 5, 1886.

Friend H., I never heard of the theory you suggest, in regard to the queen being in a horizontal position.—In regard to the bees hearing, the experiment I mentioned, of the teeting of the queen while on a comb held in the hand, seems to me touches the point. The bees will hear the note of the queen when the combs are out of the hive, and I don't think that any jar could be communicated while the comb is held in the hand.—Our smokers were first made with wire cloth instead of perforated tin; but it filled up and clogged so badly that we made a series of experiments with tin having different sizes of perforations. Those we now use give by far the best results in the long run.—I am well aware that a large amount of moisture is given off by a colony of bees in the winter time.

A LESSON DRAWN FROM THE HABITS OF BEES.

YOUNG MAN, DON'T "GO WEST."

FRIEND ROOT:—The honey season has opened up unusually well here. Fruit-bloom was very abundant, followed by white clover. Lower stories are now full. I shall commence extracting at once. My bees are mixed—Italian, hybrid, and blacks—as well as some large brown or gray bees. None of them are purely American, judging from their habits, not having any respect for the Sabbath; they work, swarm, and act as badly on Sunday as on any other day. Yet there is *one* American trait; i. e., a desire to "go west." Several colonies of mine have left a good new Simplicity home for a dug-out, or hollow tree, until we adopted your plan of giving the new colony a comb of unsealed brood from the parent, or some other colony. I find it works like a charm—contented, they at once commence work.

The thought occurred to me, could we not cut off a slice or two of the home farm for our boys when they swarm, and have them settle near us, where the country is settled—school and church buildings already built; society, and home comforts to keep their hearts warm, and social ties unsevered? Our farms are too large for the necessary high state of cultivation they demand and must receive, if farming is made to pay.

The western fever is raging all over our land. Many go, while *few* are benefited by it greatly. The loss of time, and expense of moving, together with the cost of one year's supplies necessary in a new country, if added to the "one frame" from the old colony, would build up a home away from the privations of a frontier life. Yet bees will swarm, and occasionally run away. Young people will, may, and do "go west to grow up with the country," and we must accept the change as one of the unavoidables of life. Yet when we see the young man who was raised in refined society, with his wife, the frail, fragile daughter of a cultured home, braving the trials of a new country, living in a dug-out on a treeless prairie, beneath the scorching rays of the sun, breathing the heated air from the broad prairie, cooking their food, and warming in winter their dug-out with hay or cow-chips for fuel, drinking alkaline water, vainly endeavoring to be happy in the thought that, in after years, they'll own a quarter-section, I think how much more happiness in a ten-acre lot, back in civilized life—a home, purchased and made like a little corner cut out of paradise, with no more cost than has been expended in going west and one year's living. There is not a single State in the Union west of the Alleghenies, that is one-half developed yet. Young man, remain where you are, and assist in developing your native State. "Make not haste to get rich," but, rather, enjoy life as you go along.

Ramsay, Ill., June 7, 1886. L. F. STODDARD.

Friend S., I agree with you exactly, and I am abundantly satisfied that there is a field wide enough for all who care to explore it in developing the latent resources of a little patch of ground; the new agriculture, for instance, and the possibilities that are opening out through the modern system of market gardening. Our new-agriculture beds are now furnishing green peas, new potatoes, beets, and lettuce, in great abundance, and, most of all, these things are grown without the aid of glass at all. Peas sown in February now yield three good pickings, and they were never covered, even one night. —Now, in regard to going west, I suppose the same rules would apply in a measure out west that apply here, only this must be considered: If you want to get good prices for your stuff after it is raised, you must have a thickly settled community, or else be in the immediate proximity of villages, towns, and cities. To get good prices you need to be in a climate where frosts and snow prevail, or where severe drouths are common. Strange, isn't it, that a locality where unseasonable frosts and drouths are prevalent is the one to make money? But so it is. The educated and up-with-the-times cultivator of the soil will have good crops any way; and where almost everybody fails in common slip-shop culture, there will the progressive man get rich. Again, this bright Monday, June 14, a dozen boys and girls are picking strawberries. On one patch, where so much manure was put on that everybody said I would never get my money back in the world, they are getting enormous berries in enormous quantities. The pickers are happy, the men who are selling the berries from the wagon are happy, and our customers are happy; and it all came about by fixing a little spot of ground thoroughly.

HONEY-PLANTS OF TEXAS.

ALSO VARIOUS OTHER MATTERS.

I SEND you a resurrection plant like the one described by the little girl on page 417. It is from Monterey, Mexico, but is quite common along the Rio Grande, in Texas, and is no novelty here. This one has been out of the water about six weeks. I think the plant will grow after being out of water for a long time, but just how long I do not know. It is sometimes called the "rose of Jericho;" but according to an article recorded in one of our agricultural papers several years ago, it is quite another plant.

I also send you a specimen of another shrub for naming. It is plentiful in some localities. It grows to the height of 6 or 8 feet, and one to two inches in diameter near the ground. I think it of considerable value for bees, as it is not affected by the drought. The disk of each of the little flowers is covered with honey, which can be both seen and tasted. It is swarming with bees at the present time. One thing that is perhaps against it is, that the honey is so easy of access that it is visited by wasps, flies, and all kinds of insects; but the leaves seem to be free from lice and other parasites.

Not long since I noticed the bees working on honey-locust. There were literally thousands of them. Is the honey-locust considered of much value? The mesquite, which predominates throughout Western Texas, is valued highly by some bee-keepers, but the yield of honey is uncertain, though it usually blooms two or three times during the summer. The cat-claw, another of the same family, is also highly prized, and the yield of honey more reliable, but I do not like the flavor.

It is very difficult to ascertain the proper name of any plant or tree here, as the names are derived from the Mexicans, who call every thing "chaparal," meaning brush.

Some years ago I saw what was called a petrified wasps'-nest, and it very much resembled what it was claimed to be.

I have heard of a great many attempts being made to steal honey, but the thieves invariably left behind evidences that they were not skilled in handling bees. Do you think a true lover of bees would be guilty of such an act?

Wild sunflowers, some of them nearly as large as the cultivated varieties of the North, are very abundant here, but I do not see many bees working on them.

In one of my colonies a large number of the young bees have defective wings, and perhaps a dozen perish before the hive every evening. I hear the same complaint from others. What is the cause?

On page 401, Mr. Doolittle tells how he strengthens weak colonies. Would not this be a reliable way of introducing queens?

I have one serious objection to offer to GLEANINGS. That is, it does not come often enough. I would rather have it half the size and every week, at a little advance in price.

The outlook for honey is very discouraging at present. Bees are at a standstill, with but little disposition to swarm. It is unusually dry for this season of the year. T. F. MCCAMANT.

San Antonio, Texas, June 1, 1886.

Thanks for the resurrection plant, friend M. We are going to try to see if we can not make it grow in *real earnest* as well as to *seem* like growing. The other plant you send is different from any thing heretofore submitted. We have sent it to our botanists to name.—The defective wings you mention, I think are caused by the ravages of the moth-worm.—The plan you mention for strengthening weak colonies is sometimes used for introducing queens, and probably succeeds as well as any other way, but it is a little more trouble.

WHAT AILS THE BEES?

MORE ABOUT THE COLONY THAT REFUSED TO ACCEPT THE QUEENS.

On page 350, GLEANINGS for May 1, I gave an account of some queer actions of a colony that was supposed to be queenless. You, friend Root, ask if there was any trouble in their caring for their brood, feeding the larvæ, etc., to which I answer, no. The frame of eggs and larvæ given them was properly cared for, but no queen-cells were started, although the frame remained until it was past being used for that purpose. You say, friend Root, that you are still inclined to think they had some sort of a bee in the hive which they regarded as a queen. In my experience, where such a state of things exists the bee that was accepted as a queen nearly always lays eggs of *some* kind; and then, again, what became of this bee? They had a fair chance to start cells this spring, but refused to do it, but accepted this queen, and have built up surprisingly; so at this date, May 24, 8 frames are covered with bees, and 6 of them fairly filled with brood; and, again, in regard to the age of those bees I will say I have not a colony in my yard out of 70 where the old bees held out so well. Now, it would, in this case, seem that it was not necessary to have young bees for winter, and I have had several cases that pointed that way, while I have always thought, reasoning from the length of a bee's life, that young bees must be best; but this, however, goes in favor of friend Heddon's theory of old bees for winter.

I have another strange puzzle in bees. Although I have kept bees in frame hives, and read the bee-journals ever since the *A. B. J.* was born, I have never seen nor read of an account of a case like the following:

Saturday last I went to visit a bee keeping friend who has a colony of bees in a log sawed off about 3 feet long, and set on a bottom-board. All is neatly painted, with surplus case on top, from which more or less surplus has been taken for the last 7 years, the colony always coming out in good condition. There is plenty of sealed honey in the top of the log, in sight, and there is, without doubt, 40 or 50 lbs. in the log. This colony came out this spring, strong in bees, and every thing looked prosperous until 7 days before I was there, when the owner thought by appearances that some colony was robbing them. They came out in large numbers, and seemed to be trying to carry off some very small, inferior bees that looked like some very old shiny robbers, only that they appeared sick from that time until I was there. For 7 days an average of a quart a day, according to the judgment of the owner, crawled out and died. I turned the log up and examined them, even breaking out some comb, and found brood in all stages, from the egg to the hatching bee, and in apparently a healthy state. I reached clear down to the bottom, but these little inferior black shiny bees, hardly looking like a honey-bee, are all scattered through the hive in a dying condition, as is also the larger part of the bees, both old and young. They crawl over the combs with a trembling and staggering appearance, with their tongues run out, and helpless, so the tongue will not move, and they keep crawling out on to the front board, and roll over on their backs and kick awhile and die. I have sent some of the bees to Professor Cook, to see what state he finds them in. If any one has had any thing of the kind, or can tell what is the matter with that colony of bees, I should like to know it. J. B. MASON.

Mechanic Falls, Maine, May 24, 1886.

Friend M., from your description I think that your bees have the nameless bee-disease which has been so much talked about of late. Give them a new queen, and the bees will be all right, unless I am mistaken.

BOOK-REVIEW DEPARTMENT.

HOW TO RAISE COMB HONEY, AS PRACTICED BY OLIVER FOSTER.

WHENEVER we see any thing from the pen of Oliver Foster we naturally conclude that he has something practical to present, and something worth saying. We are not disappointed upon reading his little work upon "How to Raise Comb Honey." It is published in pamphlet form, of only 16 pages, but there is a good deal there. Among the first things he discusses is, "What Hive is Best?" In answer to this question he thinks the hive that has given the most general satisfaction is the one given us by father Langstroth, as well as the modified froms, including the Simplicity. The style of hive he uses he thinks is simpler than the Simplicity. The beveled edges between the cover and body of the latter he regards as unnecessary for protection against storms. His hive, accordingly, has the top and bottom edges cut square. In other respects his hive is essentially the same as the Simplicity, with the exception of a little device for holding down one end of the frames, to facilitate the removal of the upper story.

SECTIONS OPEN ON ALL SIDES.

The writer, after giving his preference decidedly in favor of the pound section, urges, as a great improvement, that the sections be open or accessible to the bees from all sides. As he is probably the first one to originate and put in practice this idea, perhaps the arguments are best expressed in his own words:

> In using section boxes, we think some important points have been overlooked. Every available inducement should be used to inspire prompt, constant, and energetic work in the boxes until they are finished. In fact, we should *create a passion* for putting honey in boxes. This requires no magic. To accomplish it there should be no separation between the sections, and as little as possible between them and the brood. There should be *free communication* between the sections in *every direction.* They should have deep slots on all 8 edges. You may not appreciate the importance of this until you have tried them. When we take into consideration that the object on the part of the bees in storing up honey in summer is to have it accessible for winter consumption, and that in winter the bees collect in a round ball, as nearly as possible in a semi-torpid state with but little if any motion, except that gradual moving of bees from the center to the surface and from the surface to the center of this ball, we may imagine how unwelcome it is to them to be obliged to divide their stores between four separate apartments, each of which is four inches square and twelve inches long, with no communication between these apartments.
>
> Another important object is secured by using open-end sections. Bees are much more apt to build the combs out solid to the end and bottom bars of the sections, if there is comb attached just the other side, with no bee-space between, but with a wide opening through. Honey will not ship safely, nor sell well, unless thus built out. Also, these open-

> ings on all sides serve as a guide to insure straight combs.
>
> Strenuous efforts are now being made to get all the honey stored in the sections and none in the brood-nest. While we would not advise the practice of this with a view to feeding sugar for winter stores, still it is an acquisition to be able to get a colony to put *all* their honey in the sections *while they are at it.*
>
> Some unnatural operations are being resorted to, to *discourage* the deposit of honey in the brood-chamber, such as contracting or inverting that apartment. While this plan has its advantages, and may succeed, we would accomplish our object by milder means. If the foregoing and the following conditions are observed, bees will store their honey in the boxes, and not below.

It is to be observed from the foregoing, that Mr. Foster does not recommend inverting to bring the brood next to the surplus-apartment. He advocates, instead, putting the crate of sections on the hive when the honey begins to yield, or at the time when the brood-chamber is full of brood, and with but little honey. The brood is thus brought close to the surplus-apartment. This, Mr. Foster claims, brings about the same results as inverting.

FOSTER'S ADJUSTABLE CASE.

This is quite an ingenious contrivance, which, if I am correct, accomplishes about the same result as Heddon's new surplus-arrangement, but in a different way. Briefly, it is simply an oblong box or tray without bottom, of nearly the depth for sections. Two of its diagonally opposite corners are made separable, while the other two corners are fastened permanently. The case, when laid upon a flat surface, can be enlarged or drawn out, thus greatly facilitating the putting in and taking out of sections. The latter can be arranged in the case carelessly, and then be quickly drawn into position by sliding together the two pairs of L-shaped sides. An iron clamp, which Mr. Foster has devised for the purpose, is adjusted over the case. The two L-shaped pair of sides, as well as the sections which they inclose, are firmly and compactly pressed together. A pair of very simple and ingenious wedge-shaped pieces of tin now hold the whole in position, when the iron clamp, before mentioned, is removed. The sections are so compactly compressed together that the crevices between the sections are closed, preventing, to a large extent, the soiling of the edges of the pound boxes with bee-glue. This takes advantage of the fact that bees seem to abhor a crevice, and so fill it with propolis. Another advantage is, that the mere tension of the case holds the sections in position, rendering a bottom unnecessary, so that the case can easily be inverted if desired. When placed upon the hive it rests upon a slotted honey-board, the strips of which correspond to the bottoms of the sections, thus preventing the under sides of the sections from being soiled by the bees. When the case of sections is filled it is taken off the hive and laid upon a level surface, and the adjustable sides drawn apart. The filled sections can easily be taken out without prying with a knife or screw-driver to get the first section out.

The foregoing are, in brief, the advantages claimed by the author, and it seems to me we have all got to adopt some such surplus-arrangement as this or something similar, sooner or later. There is only one objection I would urge: If it is not made perfectly true to measurement, or if the sections are not of the right width, either from shrinkage or bad workmanship, we should be likely to have trouble. Perhaps the inventor does not find this an objection after all, as he has used it two seasons.

There are a number of other valuable hints in this little work, and I feel assured the reader will be well repaid if he will read it carefully. I do not know the price of the work, but I presume it can be obtained for a small amount, of the writer, Mr. Oliver Foster, Mt. Vernon, Ia. **ERNEST.**

MAKING FOUNDATION.

ORDERING QUEENS FROM THE SOUTH, ETC.

FRIEND ROOT:—I want to tell you that I have never bought an implement which has pleased me more than the comb-foundation mill I ordered of you. Yesterday we made our first run of fdn., and everybody on the place was smiling nearly all day. Every little while some one was saying, "Oh! isn't that nice?" I had just been buying up all the beeswax I could hear of for sale until I had so much on hand that it looked almost *reckless;* and my neighbors wondered what in the world I wanted with so much; and, in fact, I began to think may be I *had* better stop buying, until I was sure I could make good fdn. I am just more than pleased now. As I have used fdn. of the different makes for 8 years, I think I *know* what good fdn. is, and am not satisfied with any except the *best.*

Many thanks for the queen you sent on the 12th inst., to replace one that was lost in the mail, sent the 28th of April. The directions were printed on the cage as plain as could be, and yet they were missent, and were out some 18 or 20 days; and when they did come, of course were all dead. But this is the first queen I ever lost or had delayed through the mails.

Bees are stronger for this date than I ever before knew in this latitude. Fruit-bloom was quite good. By the way, how many of our bee-keepers appreciate the value of the white willow (or fence willow)? I have some 400 rods of it here on my farm, and there is plenty more all over this country; and when it came out in bloom it reminded me of basswood time. It is now the third year that my bees have done exceedingly well on it (before that I had not noticed it so closely).

I don't wish to complain; but what success, I wonder, have other parties had in getting queens from the South *early.* Out of five ordered and specially desired early (to give to queenless colonies early in the spring) from different parties and at different seasons, I have never yet received *one* any sooner than I could have *raised* them or got them from parties in the latitude in which I live. Now, this is quite an item to me, for I had thought, "How nice this is, when we find a colony queenless in early spring! Why, all there is to do, just inclose $1.00 to some queen-raiser away down South, and in a few days we can have that colony all right;" but with my past experience I shall have to modify my expectations in that direction. This spring I ordered of an extensive breeder in the South, requesting him to put with the queens an extra number of bees, and send as soon as possible (the order was sent April 13). After waiting some ten days, and looking for the queens, I received a note, thanking me for order, and stating that as soon as the weather would do to risk sending them he would ship, etc. We were having 60 to 75° in the shade at the time, quite a number of days, and the nights were nice and warm. I told him to please hurry them on, etc. The queens finally came May 10th, when I had plenty of drones flying, and could have just as well raised some fine queens myself in the same length of time. If my experience is the exception, and not the rule, I shall probably try again, some time. But if this thing is quite common, and if it is not safe to ship queens in early April as far north as Central Iowa, I should like to be enlightened, and will be governed accordingly.

D. E. BRUBAKER.

Maxwell, Story Co., Ia., May 22, 1886.

We are very glad the mill pleases you, friend B. Now, is not part of it owing to the fact that you were in just the right shape to be pleased? I agree with you in regard to getting early queens from the South; that is, there seems to be some truth in what you say. With all their great advantages of climate, they don't seem to get very much ahead of us after all, if we should set right down and try hard. You know I have for several years proposed to give advertisements free to all those in the South who had queens on hand ready to ship during the month of April. Very few have responded; but probably those who did respond were very quickly sold out.

LETTER FROM BRAZIL.

FUEL FOR SMOKERS, ETC.

MR. ROOT:—I am much obliged for your recipe for vinegar. If you think it of some utility for your readers I will with pleasure give you two hints, perhaps of some use.

The first is a fuel for smokers, the best I ever tried, and perhaps at hand with your Southern friends. It is the pith-tree (aloes), in pieces not very small. When dry, it burns exceedingly well, gives plenty of smoke, and no sparks.

A TWO-STORY HIVE THAT WILL ADMIT OF RAISING THE LOWER FRAMES WITHOUT REMOVING THE UPPER STORY.

The second hint is a hive I have been trying for six months, very successfully. I like Simplicity hives; but I prefer two stories, even for extracting, but find quite an annoyance (the separated second story) in the handling of which bees are often killed. I have profited by the unwillingness of bees to build comb in narrow spaces. I make a sufficiently high box with two thicknesses. The under frames are put as in ordinary hives, the upward stand parallel to the first; only their sides are half an inch or ¾ from the hive, instead of the usual distance. Two detachable pieces of wood lying on nails support the upper frames and division-boards. If you keep always one or two *empty* frames in the upper story, there is no fear of building combs off the frames.

MIGUEL RIBEIRO LISBOA.

Barbacena, Brazil, S. A., Apr. 26, 1886.

Thank you, friend L., for your kind letter and suggestions. The arrangement you mention for the Simplicity hive has already been in use with us; but as it has been dropped for some years, I am inclined to think it has not been found to be very satisfactory. We shall be very glad indeed to hear something more about the bees and bee culture in your far-away climate.

POPLAR HONEY PREFERRED.

ARE THE CARNIOLANS SUPERIOR TO ITALIANS?

THOUGH not strictly an A B C scholar, not having your text-book, but Cook and Langstroth, I have, for forty years, been an occasional student of bees. Every little while some new fact proves to me that I have not yet "learned it all." In so long a time I have had to do more or less with many strains of bees. My earliest experiences were with pure Germans, which were not hard to handle. A few that I have handled in late years were almost, perhaps perfectly, pure Italians, but the great majority have been Italian hybrids of varying shades of impurity.

Some of these have not at all maintained the reputation of hybrids for crossness, but the majority of my present stock, all mixed, are beyond comparison the most vicious bees I ever handled. They seem at least reasonably hardy, for all my thirteen colonies wintered in plain Gallup hives, on summer stands, and almost exclusively on the aster honey which they gathered last fall.

My vicious bees average passably as honey-gatherers. The crossest colonies are generally the best workers. A few days ago we extracted ten gallons of extra-fine well-ripened poplar (tulip-tree) honey! One of your contributors complains of no market for it, on account of its dark color. Most people here prefer it to any other kind produced in this vicinity, though my own choice is the sourwood which comes later. We keep our bees here exclusively on natural stores whenever they gather enough after the last extracting, and then we never have trouble with diarrhea or dysentery, probably because our bees are seldom confined 30 days at once, and because our severest cold spells are of short duration. Almost the only sources of loss are freezing and starvation.

As a source of honey-supply, white clover here seems almost worthless. It makes the best show in the poplar season, when bees will hardly touch any thing but the great tulip-blossoms of that rich honey-bearer. Just here we have not a great deal of it; but my former near neighbor, J. F. Montgomery, lives now about a dozen miles away, where, last May, great fields were white with white clover, and he says that he never gets any appreciable quantity of white-clover honey. We find that Italians and hybrids work far more on red clover, especially the "sapling," or "peavine" variety.

WHY DID THE QUEEN SUDDENLY STOP LAYING?

A few weeks ago I procured some eggs from one of Mr. Montgomery's best queens, hoping to make my stock both more amiable and more industrious. Though some of my queens were lost in introducing, I now have several busy laying. But my particular puzzle is one that is not laying. I released her from a cell partly destroyed by a rival, and introduced her to an artificial colony, formed about twelve hours before, of frames and bees from three or four colonies. She was accepted, and a week later had nearly four frames full of eggs and young brood, and her abdomen was considerably enlarged. Four days later not an egg or an unsealed larva could be found in the hive. Not seeing the queen, I feared that too much meddling had caused the bees to destroy her and her progeny; so I gave them a frame with brood and eggs, and for about a week I left them undisturbed. At my next inspection that brood was nicely sealed; no royal cells were started, but the queen herself, a little reduced in size, was moving about quite lively, and not an egg could be discovered. Can you explain these eccentricities?

Can any practical bee-keeper, one who is more interested in honey-production than in the sale of novelties, answer a few questions about Carniolans? Are they equal to Italians in hardiness? in fecundity? in protecting themselves against moths and robbers? in honey-gathering? Are they superior to them in gentleness? Are their hybrids gentler than Italian hybrids? This last is of some importance in this neighborhood, where blacks and mongrels abound. 8—David Strang, 13—13.

Lincoln, Lincoln Co., Tenn., May 24, 1886.

Friend S., I do not know any reason why your queen stopped laying so suddenly, unless she has failed and will soon be superseded. If the yield of honey stopped just about the time she stopped laying, that might account for it; but they seldom stop all at once, as in the case mentioned.—Our experience with the Carniolans does not warrant us in calling them any thing better than Italians. They are rather gentler to handle than the average run of hybrids, but we can not find that they are any more so than full-blood Italians in general. In other respects they are just about like Italians —we can not discover any difference worth noticing. See Our Own Apiary, this issue.

SAFE INTRODUCTION OF QUEEN-CELLS.

AN INVENTION THAT SEEMS TO PROMISE A GREAT DEAL.

Friends Root, Hutchinson, and others, have told us in the past how they took a laying queen from a nucleus or full colony of bees, and immediately (before closing the hive) gave the bees a nearly mature queen-cell, they having little or no trouble regarding the bees destroying such cell, any more than they did to wait 48 hours before giving such cell, as most of the bee-keepers of the world are obliged to do, if they would be at all certain of success. If I remember correctly, Mrs. Harrison said she could not succeed with more than one cell out of twenty by this plan; and my failures were still greater than hers, for I do not now remember of ever getting more than one cell accepted, where said cell was put in within six hours after the removal of the queen. In fact, I have so utterly failed that I had become a little skeptical, classing such stories of success along with the stories of successful artificial fertilization of queens.

Well, the time having again arrived when I desired making the most possible out of the nuclei I had formed, this subject of immediate introduction of queen-cells and virgin queens came up in my mind. It was evening, and I had lopped down on the couch waiting for the return of a part of the family, and thinking what I could do regarding this matter. In a half-dreamy sort of way I wandered over the past and thought that my only plan of success had been by the one friend Root had given, of putting a square wire-cloth cage over a cell, and pressing the cage into the comb, thus keeping the bees from the cell for two or three days; but as the bees often ate under this cage and thwarted my plans, I felt that it was little in advance of wasting 48 hours. While these thoughts were in my mind I fell asleep for a short period. When I awoke, instantly the thought came to me to go and make a small funnel-shaped cage of wire cloth, just large enough to hold a queen-cell, and I was master of the situation. I at once made a round V-shaped stick, and taking a small square piece of wire cloth, rolled it around the stick in such a way that the hole in the small end of my wire-cloth funnel was as large as a lead-pencil. I next cut off a piece of a ⅝-inch cork and placed it in the large end when my cage was ready.

The next day I was to send off some queens; and as I had a lot of cells ready to hatch the day after, I had only to wait during the night before I could try my plan. Accordingly, as soon as I took the queen out the next day to ship away, I went and got one of my nearly mature queen-cells, slipped it in my cage, with the point down into the lead-pencil hole as far as it would go, put in the piece of cork, ran a small wire through the meshes of the cage above the cork, so as to keep the cork in, and at the same time make a handle to hold the cage in any position I wished it among the bees, when the wire was bent so as to hook over the top of the frames, and the caged cell hung in the hive. More were treated the same way, for some way I felt confident that the plan would succeed.

I was now called away from home for two days, and upon my return I found that, in each hive having a caged cell, there was a nice virgin queen; while in a few hives in which I had put some of the same cells without caging, all were destroyed. I have now used this plan for two weeks, and in not a single instance have I failed of having the cells hatch all right, and the bees accept the queen. The plan also gives you the privilege of placing the cell right in the center of the smallest cluster of bees without cutting or mutilating the comb, as must of necessity be done by the old plan in these little colonies during cool weather, which is no small item with those desiring perfect combs. I suppose I might have waited before giving this plan to the reader, till I had tried it through one season; but when I thought of how I had been bothered for years, and of the little expense required for all to test it, I concluded that I would not wait; for if it worked with all as it did with me it would save many queens for the bee-fraternity. The principle of the plan is this: The bees always destroy a cell from the side or base, and never at the point. The cage protects the cell everywhere except at the point, but still allows the bees to get accustomed to the presence of the cell, the same as if the cage were not there. The lead-pencil hole allows the queen to hatch, the same as she would if the cell were not caged, while the bees can feed her and hold her in the cell as long as they please, so that she can not get out till they are ready to accept her.

G. M. Doolittle.

Borodino, N. Y., June 1, 1886.

Friend D., I suppose you know the idea of caging queen-cells is not new. Cages specially adapted for this purpose have been advertised for a good many years. There is one point in your invention, however, that seems to be new, and that is, leaving an opening in the apex of the cone, large enough for the young queen to bite her way out. The wire-cloth cones used by friend

Alley and others in their drone-traps I think will answer the purpose nicely. We will give it a trial at once, and report.

PLANT-LICE AND HONEY-DEW, AGAIN.

SOME OBSERVATIONS BY MRS. CHADDOCK.

I WONDER if these lice on our box-elder are the kind of lice that make the honey-dew. There are millions of them on the under side of the leaves and along the stems, packed tightly on top of each other. To the naked eye they are a little green bug, varying in size from a grain of mustard to a tongue-grass seed. Under the microscope they are a pale-green, waxy-looking affair, with deep-green stripes down each side of the back. Their legs and feelers look as though they were made of white wax, tipped with reddish brown. The eyes are of the same color as the tips of the legs and feelers. They are fat and squabby, and when they walk the body drags. When they get older they have long white wings, and the body is not so large. They have a sort of a *skeater-did* appearance. They taste like the leaf that they feed on (I ate a few), and just now I found out that the top of the leaf is all glistening with little splotches of a decidedly sweet substance. Under the magnifier it looks like clear water, not standing in drops, but flattened out or smeared over. I pressed the bugs under the lens with a pen-point, and they gave out a tiny drop, too small for the naked eye to see, and I tried to taste it, but it doesn't make any impression on the tongue, so of course they are the very bugs that make the honey-dew. I had not seen the sweet stuff on the leaves when I began writing. The bees are not working on it at all, as the apple-trees are in bloom.

MORE HONEY-DEW—LATER.

For a whole week my bees have been roaring about the tops of the Norway spruce, and I have been wondering what they found there, but had no time to climb the trees, and I could see nothing on the lower limbs. But this morning after I had turned the cheese, fixed the fire under the soap-kettle, put more water under the lye-hopper, milked two cows, and fixed the churn, I built a sort of scaffold out of a tub, a box, a board, and another tub, and, standing up there, I found drops of nectar (?) in among the new growths. It is as clear as water, and *very* sweet. Along the stem were some things that looked like brown scales; but under the magnifier they developed into plant-lice. They resemble the insects found on the box-elder, in every thing but color, these being of a yellowish-brown color, with darker brown stripes down each side of the back; and when I pressed them they discharged (I should think) six times as much sweet as the green kind did. So far I am pleased with them. This is a dry time for honey here; and if the plant-lice will be kind enough to fill the gap between fruit-blossoms (apple-blossom) and raspberry-bloom, it seems to me that they will fill a great vacancy. Perhaps if each one of these lice is to be the parent of a million more I may get over my joy of them before the season is over; but just now I'm pleased.

My bees have gone crazy. March hares, loons, and all the other comparatively crazy things are safe and sound when compared with my bees. They don't know what they don't want. Always, till this year, I had my bees scattered about under the maple-trees, on the north side of every thing, and in corners here and there. I always keep the queens' wings clipped, and when they swarm I catch the queen, put her under a goblet on a plate, set her in the shade, and let the bees come back at their leisure. I used to carry the old hive away and put the new one in its place; now I turn it around, *a la* Heddon, and set the new one where the old one used to be. I always put in a frame of hatching brood, and never had bees desert the hive. Now I have my colonies all in one spot, standing eight feet apart each way. When the first swarm came out I proceeded just as I always had done, but the bees came back and divided themselves around among the four hives that were nearest. Then another swarm came out, and they were going to do the same, but I put fifteen yards of cheese-cloth around one hive, a bolt of muslin around another, a table-cloth on the third, and a wet towel on the fourth. Then I lighted up my Clark's smoker; and wherever they seemed thickest, there I was in their midst. I finally persuaded them to go back where they came from; and when I had time to draw my breath and fan myself a little with a rhubarb leaf, I began to smell smoke, and there the cheese-cloth and the table-cloth were both burning away. I subdued the fire, and then another swarm came out, and, without ever alighting, or acting in any way as bees should, they went over to a colony that was already boiling over full, and went in and on the hive.

The next day was Sunday, and Sunday is always a field day with my bees. The one that went in the empty hive the day before came out and alighted on an early Richmond cherry-tree. I caught the queen, and we carried a hive over there and put the bees and queen in; then carried them off a distance from the rest, and left them, with no brood nor foundation in the hive. Two more swarms came off and came back when they ought to.

In the afternoon these two swarms came out and alighted on two barberry bushes that stand close together. One of them had just about settled when the other started out. Then when they started to go back, each one went to the wrong hive and went in and stayed all right. Next day they came out and both went in one hive, and all the other new swarms came out, and, after airing themselves for awhile, went back where they came from. Hatching brood doesn't make a particle of difference. The first swarm started 23 queen-cells in the 24 hours that it occupied the hive. None of the others started any. Now as to their being too warm. I hived them in Simplicity hives, and I set them twisted on the bottom-board so that the air could come in; then I put muslin on top of the frames, then I set an empty hive on top of that, and put on the cover so that the heated air could pass out. The hive that held the two swarms, I piled up four stories high, the two lower ones having frames. I don't mind a little skirmisking; but to have the bees playing "pussy wants a corner," trading hives with each other, coming out every day to take the fresh air, as if they were invalids, and the doctor had ordered it, and hanging on the outside of hives while billions of clover-blossoms are going unsucked, is too much. **MAHALA B. CHADDOCK.**

Vermont, Ill., May, 1886.

Why, Mrs. C., I do not wonder that you

thought your bees had gone crazy. Probably a great part of the trouble was caused by the change in the way you locate your hives. Why not divide them before they are ready to swarm, and not have any swarming? That is the way we do here; but then, we don't raise comb honey, you know. No wonder you wanted to sit down and fan yourself with a rhubarb leaf. Sometimes the bees seem to have a sort of mania when they first commence swarming in the spring; but I think if you keep patient you will find they will get over it and behave all right after a little.

MRS. HARRISON IN REGARD TO THE MISTAKES SHE HAS MADE.

SHALL BEES BE LET ALONE IN THE SPRING, OR SHALL THEY BE FUSSED WITH?

WHEN our little girl used to do any thing wrong she would say, "I made a mistaken;" and I have come to the conclusion, that I have made many "mistakens" in my spring management of bees. Last fall, when I fixed them up for their winter's rest I told them that I would not meddle with their household arrangements until after fruit-bloom, and I have kept my word to them in good faith. I laid some comb honey upon the frames of a few that seemed light when carried from the cellar, and fed in the open air all the odds and ends of honey that had accumulated in the honey-house during the winter. I always keep a regular feeding-ground in the same place, and I have never induced robbing by so doing.

One spring, following severe winter losses, I tried to follow Mr. Doolittle, and I am confident I destroyed many weak colonies that would have pulled through if I had let them alone. There are so many minor points and notes of warning that the successful ones fail to give in their *modus operandi*, that what is safe in their hands often proves a failure in the hands of others. Hereafter I shall do my *spring* work in the fall; i. e., I shall feed them if they need it, abundantly, tuck them up snug and warm, and let them manage their own affairs until after fruit-bloom. I have had less balling of queens, swarming out, etc., this season than ever before, and they never so entirely alone paddled their own canoe. Clover is blooming, with very cool nights, and little honey coming in. It is very dry in this locality. Hives are running over with bees, but few swarms. MRS. L. HARRISON.

Peoria, Ill.

Mrs. H., I, too, have come to the conclusion that we did our bees a serious damage by cleaning out the hives, closing up the brood-chamber, and too much manipulation before the weather had got to be warm and settled. I have seen them swarm out just after their hives had been overhauled, when the bees that had not been tinkered with behaved themselves all right. Now, I suspect that the wisest way would be to give help when help is needed, and do it when the weather is suitable, but avoid any thing that demoralizes them or discourages them when they are first collecting their latent energies in the spring. For instance: If the queen should die during the winter, which often happens, the colony would be lost without attention; whereas it might be one of the best colonies, if given a queen in season, or sometimes if given only a frame of brood. The same in regard to stores.

NOTES FROM THE BANNER APIARY.

No. 78.

BENEFIT OF SPRING PACKING.

I TOOK the bees from the cellar the middle of April. It did seem foolish, during the warm days that succeeded, to pack the bees with chaff upon their summer stands; but I did it—*i. e.*, all except the two strongest colonies. At this writing, May 25, they have been unpacked a week, and it is easy to see that several of the packed colonies have outstripped the two left unprotected.

"A YEAR AMONG THE BEES."

This is the title of a bee-book by one of my best bee-friends, Dr. C. C. Miller. It has been said, that the sale of a book depends very much upon its title. If this is true, the doctor is to be congratulated, as "A Year Among the Bees" was very happily chosen to stand at the head of that delightful little narrative, descriptive of the apicultural journey of one year; a jaunt that we bee-keepers all take each year. "A Year Among the Bees"—how pat!

The doctor does not claim to have made any great discovery. He says: "At the risk of losing caste as a bee-keeper, I am obliged to confess that I never got up 'a hive of my own,' never even tried to plan one * * *" But I will tell you what he has done. He has removed from our path numberless small obstructions. He has smoothed our pathway, so to speak, and has done the work well. When traveling upon the highway it is no great annoyance to go around the hills, to turn aside for some large boulder; but the small stones and ruts in the roadbed are often quite trying to the temper. Great losses and disappointments are sometimes borne with greater equanimity than the petty annoyances and trials that come to us almost daily. I feel sure that my friend Miller will not consider it mean praise when I say that he has done more than any other author to show bee-keepers how to avoid the thousand and one pesky little plagues with which they are often tormented. Even if he had not shown us how to receive any more surplus honey, his book is abundantly worth its price, for the simple reason that it shows us how to reduce the friction to the minimum. I wish space would permit me to go on and notice all the nice little hints that are given. For instance, I have given bees access to combs of honey or partly filled sections, and how often I have wished that they wouldn't be so greedy as to tear the combs all down. Dr. Miller says: "Pile them up in supers out of doors, covering them up and leaving a hole large enough for only one or two bees to pass at a time." Why, to be sure! how simple! and yet I had never thought of it. I have tried it this spring, and it works well. Another thing: He leaves his cellar-doors open the night before the bees are to be taken out, and in the morning they are quiet, and do not *rush* from the hives when taken out. He also tells how to take sections from wide frames and supers, how to put fdn. in the sections, about dress for the hottest weather, double hives for full colonies, etc. There are also many handy little implements described, that help to make matters move easily. As the months rolled by, and one stage succeeded another in the "year among the bees," I found myself watching eagerly to see how the next step would be taken. I had been upon the same ground, and it was interesting to see *how* my friend Miller would *step*. And then the charming manner in which the book is written! Let me give an extract or two: "Now that the apiary is in running order, you may want to take a look at it. 'You don't think it looks remarkably neat?' Neither do I. If I had only six dozen colonies, and were keeping them only for the pleasure of it, I should have their hives painted, perhaps ornamented with scrollwork; but please remember that I am keeping them for profit, and I can not afford any thing for looks. Some of them are painted with a cheap reddish-brown mineral paint; but that was years ago, and they look very dingy. More of them are unpainted, and the oldest of these look dingier still. I suppose they would last longer if painted, but hardly enough longer to pay for they paint. Besides, in the many changes constantly taking place, how do I know that I may not want to throw these aside and adopt a new hive? I have already changed three times, having begun in 1861 with a full-sized sugar-barrel * * *."

"Having a hive ready, now for a seat. Bro. Doolittle once tried to poke a little fun at me in convention, because I accidentally admitted that I sat down to work at bees. If I were obliged to work all the season without a seat, I am afraid I should have to give up the business from exhaustion. Moreover, if I had the strength of a Samson I don't think I should waste it stooping over hives, so long as I could get a seat. I generally have three or four seats about the apiary, and I just take for a seat a box in which 500 sections have been shipped, whittling a hole in it to carry it by. By placing it differently, it gives me a seat of three different heights, suitable for working at a one-story hive, or one with supers tiered up on it."

I can not close without saying how agreeably I was surprised to find that friend Miller contracts the brood-nest to *four or five combs* at the time of putting on the supers; also that his bees usually require feeding in the fall, and that he feeds them sugar syrup.

Brother bee-keepers, you will learn many little "kinks," and enjoy a real treat, if you read "A Year Among the Bees." W. Z. HUTCHINSON.

Rogersville, Mich.

DR. GALLUP AND J. P. ISRAEL AT HOME.

THE ADVISABILITY OF GOING TO CALIFORNIA TO MAKE MONEY AT BEES.

I HEREWITH present your readers with a few "notes by the way," on a trip to California. We left Kansas City, Mo., Friday, Nov. 27, on the emigrant car of the A., T. and Santa Fe R. R.; fare $45.00. Right here let me say that the emigrant car is hitched to the express train, and makes the same time as first class. My wife did not like the idea of traveling that way, but now she says she prefers to go on the emigrant car, rather than to take first-class passage at the same price. We arrived at Emporia, Kansas, where was a fine stone depot, two stories, and a town of 12,000 inhabitants. On the morning of the second day we arrived at La Junta, Col. We passed through the great plains of South-western Kansas during the night. About 11 A. M. we are only 34 miles from the Spanish Peaks, where all is white with snow. At Trinidad, Col., many of the houses are made of adobe, or dried mud, flat roofs; 6000 ft. above sea-level. At 1 P. M., going up the mountains, grade 113 ft. to the mile; takes two engines to pull us. We pass through a tunnel, and enter New Mexico, 7622 ft. above the sea. Here it is quite cool, and here, also, we saw some mountain goats. The scenery is very rough—large rocks and vast lava-beds. We are now 1000 miles west of Kansas City, and have passed hundreds of miles of treeless plains, without enough grass to feed a prairie-fire.

The fourth day we crossed the Colorado River into California, and traveled all day with nothing but sand and cactus in sight. I thought if all of California were like this, that I would leave very soon. On the fifth day we passed through a tunnel 1¼ miles long. I then saw some good country within 30 miles of Los Angeles, at which place we arrived in the afternoon. We rented a house and got to housekeeping, and I bought myself a pony and took a ten-days' ride over Southern California. I started Dec. 7th, and on the first night stopped with Dr. Gallup, of Santa Anna. It seems that the doctor has no family—at least not here. He has a nice young orchard and vineyard, and had a very nice house just ready to plaster. The doctor has not kept any bees for several years. He says the bees went back on him, and that they will chew a raisin right up after it is dry. His statement about making a start with $50 or less, applies to himself, not to any one who has no trade. He is a water-doctor, and works at his profession, which is a good one for this country, as so many come here sick.

The second day on horseback I traveled 47 miles, and went 22 miles without coming to a house. I then would have fared poorly if I had not had my blankets to sleep under. I next saw the grand old ocean for the first time. The breakers, when seen from a distance, look like a long line of clothes flapping in the wind.

The third day I came to the ranch of J. P. Israel, and found it after dark. I almost got lost in the cañon, which is a hard place for a stranger to find, twelve miles from a small postoffice and store, and about 35 miles to San Diego; he seems to have a first-rate location, with only one apiary anywhere near him. I found he was and had been "ranching" it for three years. Mr. Israel is an old man, about 50 years, I should judge. You remember the laugh he had on the Heddon bee in his big report. Well, I should say his bees were very much like the Heddon stock, for I did not see a hive that had all the bees with even one yellow band. I called them very poor hybrids.

Dec. 10th, the day I was there, the bees were working on some weed that grows on the mountains, and some of them had good loads of honey, which made them drop. There was not a day during my ten-days' trip (from the 7th to the 17th of Dec.) that bees did not get honey. Think of that, O ye "friz-up" bee-men. Mr. Israel uses dry horse-dung for smoke, and it works first rate. The way the bee-keepers of Southern California work their surplus boxes is like this: Suppose you have a Simplicity hive with a solid honey-board, small enough so that the bees can come up around the outside edges. Put on your upper story, then fill it with Harbison boxes, the ends of the boxes being open. The bees have to go in at the end. They then can't work from one set to the other from the bottom, but have to come around to the end. The ends of each clamp come within ⅜ inch of the side of the upper story.

To sum up the whole matter: As regards myself I am a young bee-man who could and did make a good living from bees, from one year to the other, in Missouri. I came with my family to California with the intention of keeping bees, and staying one year anyhow. I did not come to "bach it for two or three years. After riding over 300 miles I have settled in Los Angeles, and gone into some other business. I have not seen a bee-man who says he can make a living from bees. Since I have been here I have seen 196 cans of extracted honey, of light color, as light as white clover, all candied, and one year old, sold at auction for $1.55 per can of 60 lbs. However, we like this country and expect to stay, but don't advise any one, who can make a living where he is, to come here unless he has lots of money; and if he wants to keep bees, he must be willing to live in the most out-of-the-way place. Any person who can't make a living in the States had better stay away from here. There are more persons here who can't get work, than anywhere else.

Los Angeles, Cal. F. J. FARR.

Thanks, friend Farr, for your very fair and impartial statement in regard to the climate and facilities of California.

HOW TO SELL OUR ENTIRE YIELD OF HONEY AT GOOD PRICES.

FRIEND MARTIN'S INSPIRATION.

IT is now 2 o'clock at night. The above grand idea struck me so suddenly that here I am at my desk to give you the benefit of my thoughts; and without further remarks I will proceed to the great subject.

A certain class of writers for our bee-journals continue to reiterate, from time to time, their belief that there is an overproduction of honey. I shall adhere to the belief that there is not an overproduction, and that, should our yield be the greatest ever known, it could all be sold at remunerative prices. The first proposition I shall lay down is, that we have a great country, and there are thousands of localities where no bees are kept and no honey produced, and where honey, if sold, is ordered from distant points, and at high rates. We frequently receive letters from friends from various parts of the country, ordering a small amount of honey, telling us they can not purchase honey without paying exorbitant prices, and then not knowing if it is pure honey. Now, my friends, why should this condition of things be? Let me answer the question. It is for the reason that we are educating a class of producers, and not one is educated to sell the product. Friends Heddon and Jones and others, have around them each season a number of students. We hear of their progress, and graduation as experts, to secure tons of honey; but there their education stops; and unless they have the natural tact as salesmen, their honey is shipped to perhaps an already overloaded market. Now, what we want at this stage of apicultural progress is educated salesmen. Let them first learn all the details of management of bees and production, then let them study the various methods of selling honey, supplying a wide constituency, and we should predict that their profits would be far more than if they were merely producers. If we had a few honest and energetic salesmen in every State there would not be a complaint about overproduction.

But I think much can be done without such salesmen, by co-operation. For instance, Bro. Russell, on page 347, shows us that he has the tact of a salesman. He says he wishes that village of 10,000 population were near him. Now, Bro. R., hunt up such a village. Isn't there one in your county? Then you could order of us who don't know how to sell to advantage. You know W. Z. Hutchinson says it puzzles him to hear a man tell how easy it is for him to sell his honey, but he never wants any more to sell again. It is easy to sell a small crop of honey, or even a tolerably large crop, if you have a monopoly of the business; but, ten chances to one, other bee-keepers enter the market in competition with you. Now, where such competition takes place, instead of letting their interests come in conflict, let them, in a brotherly manner, try to spread their product over a greater surface. That is the whole question in a nut-shell. We dump our product down here and there in lumps, when it should be evenly distributed. This can be done only through co-operation and educated, energetic salesmen. Shall we have these? It rests with bee-keepers themselves to answer these important questions. J. H. MARTIN.

Hartford, New York, May 22, 1886.

Friend M., I guess we'll have to start a school to teach people how to sell goods. Now, I am not sure that any school would be better than the one that lies before every producer —the school that we all have to learn in from stern necessity, and perhaps by sad lessons of experience. But it is true, that the honey-product is by no means evenly distributed. In the immediate vicinity of some enterprising bee-keeper, honey is often retailed as low as 10 cts. per lb. for extracted, and from 12 to 15 cts. for comb honey; whereas there may be a hundred localities, and perhaps not many miles away, where the old prices of from 20 to 30 cts. a pound are ruling. If some system could be inaugurated whereby the whole country could be thoroughly canvassed it certainly would be a wonderful help to our industry.

HONEY-JUMBLES.

Within an hour we have opened a barrel of jumbles, made by one of the largest baking establishments in our State. The manufacturers guarantee them to be made from pure honey—not a particle of sugar nor molasses about them. The advantage gained is, that these cakes never dry up. You may buy a barrel full, and they will be just as nice for the children to eat after a whole year as if they were just made by mamma. We have for the first time put them on our wagon that goes over town every other day. The retail price is 15 cts. per lb.; wholesale, 8 lbs. for a dollar. If these honey-cakes were extensively introduced, this trade alone would consume immense quantities.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from May 15.

CHAPTER XVII.

Whatsoever thy hand findeth to do, do it with thy might.—ECCL. 9: 10.

Before taking up the matter of sowing seeds, I wish to digress a little and touch upon a subject which particularly belongs to the last half of the title of our book; namely, how to be happy while doing your work.

It was between four and five o'clock in the morning, in the month of May, when an acquaintance called. There had been so many applications for work that I had put a notice in one of our county papers, saying that I could not promise employment any more. This acquaintance evidently had something on his mind; but pretty soon he came out with it, and spoke somewhat as follows:

"Mr. Root, I don't want to trouble you by asking you to take any more hands into your employ; but I have a young half-brother living with me whom I am rather obliged to support, and he has nothing at all to do. Now, if you can set him at work anywhere, and at any kind of wages, no matter what, I shall be greatly obliged to you. He is to have his board any way, so it will be thankfully received, no matter what you pay him, even if it does not half pay for his board. You can try him, if you wish; and if he does not please you, don't keep him; but I would much rather he would be at work than to be lying around idle."

"How old is the boy, friend S.?"

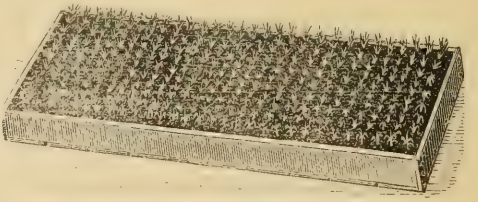
"Why, Mr. Root, he is only fifteen years old; but I believe he is a good boy, and intends to do right. Can't I send him to you on trial?"

The result came with an anxiety and look in his manner that touched me, and he went away without my ever thinking to ask the boy's name. Pretty soon the boy came — a sober-looking little fellow with what seemed to me a rather sad air or sorrowful countenance. I asked him if he was the boy who had come to work on trial. He said he was. I asked his name; and when he gave it it startled me. It was a plain, common name, and nothing singular about it, only it happened to be, both surname and given name, exactly the same as that of my wife's father. My mind ran back to the time when I first met my wife. When I inquired who she was, somebody told me that it was Susan Hall. After a little I learned that her father's name was Daniel Hall. An honest, earnest, hard-working old gentleman I found Daniel Hall to be, and it was he who gave me my first impetus, almost, in this busy world; for when the subject came up, he frankly objected to my poor self as a suitor for his daughter, on the ground that I had no stability of character. I was in the chicken business somewhat, then crazy about electricity, etc., and shifting about; and, worst of all, I was not earning any thing, nor even fitting myself for any special branch of usefulness. Good old Daniel Hall's words stirred me, and I declared I was going to commence forthwith to be good for something. It did not take a very long time nor much hard work on my part to win the confidence and respect of my wife's father; and I won it, too, long before we were married. In due time he began to lean upon me, as it were; and when I became a Christian he was willing to trust me for all time to come. On his dying bed he begged me to take charge of his property, and see that his wishes were all carried out in regard to it. He talked with me freely and frankly in regard to the great unknown beyond the tomb.

Well, when I asked the boy his name do you wonder that I was startled when he said it was *Daniel Hall?* Perhaps the memories awakened by that name made me take a deeper interest in him, and study him more fully. I took him down to the creek-bottom ground where the men had been digging out the stumps and plowing out roots. I had been trying to get the small boys interested in picking up the roots and stones so as to make the ground clean. Like most boys they could see only back-aching drudgery in the work, and they not only made slow progress, but they did not *see* half of the stones that were so plainly visible to *my* eyes when I came around. I explained to Daniel what was wanted. I took up a basket and picked up roots with him for a while, as I generally do, that I may be sure the boys understand just what is wanted. Well, I was greatly surprised to see Daniel take hold and take up the roots rapidly—yes, as fast as I could—even saved steps and saved motions by calculating with his mind while he made his hands fly rapidly. I had seen boys start a good deal that way before;

and, please don't blame me when I say that I feared it would not last over an hour or two; but it did. He worked all the forenoon and all the afternoon; and when we gave him other work for a change, he worked hard at that. The boy had been out of work until he was *hungry* for something to do. Oh, how I do *like* to find people who are hungry for something to do, and who are accordingly thankful when work is furnished them, no matter what kind of work it is! I told my wife that my heart was turning strongly toward her father's namesake.

Some time after this a lady called, begging me to try *her* boy; and as business was then crowding I consented to try him also. He was about Daniel's age; and with Daniel for an example, the boys soon came to be a kind of "span," as it were. Of course, they would have their fun when they were at work together; but altogether I felt happy about my two new boys that were at work outdoors out in the garden. A great part of their work was setting out little plants from the seed-boxes, and, like most other boys, they pretty soon began to get tired of it; but I told them it was the only work I had for them to do, and that they would have to work as long as they could, and when they got tired they could mark off their time and rest. They each get 7½ cts. per hour. This, you know, would only about pay for their board; and as many hands in the factory work over-hours during the busy season, as it is now, the first I knew, my two boys, Daniel and Walter, were working till seven o'clock without their supper. I expostulated a little; but Walter said they had hard work to pay for their board unless they put in more time than ten hours a day; and he said they did not mind waiting until seven before they had their supper. I told them I didn't believe they could work from one o'clock till seven, neither in justice to themselves nor to myself; and I found by watching them that they frequently got so tired during the afternoon that their work did not amount to very much; but toward night they would frequently brighten up and set out plants at a pretty good rate. To show you what kind of work they had, I will give you a picture right here that I have used before.


A BOX OF WHITE-PLUME CELERY-PLANTS AS IT APPEARS WHEN FIRST TRANSPLANTED.

The little plants were taken out of the seed-boxes and planted in the open ground, in just the order they are seen above, using the transplanting-frame, shown on page 136, to space them. Now, in transplanting cabbage plants we put one in the center of each mesh; but with celery we put two in each mesh—one in each of the acute angles of the six-sided opening. I knew the boys were not making the progress they ought to make, and yet I knew, also, that they tried hard to be industrious. Each one had a large wide board to rest on while he worked at his plants. The wide board, you will notice, prevented him from injuring the smooth surface of the bed or the plants, where the plants had been transplanted. The wide board is laid right across the frame, so they can get close down to their work. It also allows them to recline, if they choose, resting part of the time on one side and part of the time on the other side. The ground is kept constantly wet by means of a sprinkler. Well, I told the boys to look at their Waterbury watches and see how long it took them to transplant a frameful. It took them about four hours apiece, while Mr. Weed, who has charge of the greenhouse, could plant a frameful in about an hour. The trouble was, the boys had got tired and wearied of their work; and even if they tried they could not awaken an interest in it, and did not enjoy it very much, simply because it had become monotonous.

Now, please don't be impatient, dear reader, because I dwell so long on these little details in regard to a couple of ordinary boys setting out plants in a garden. The boys were just about such boys as I used to be; in fact, I saw myself as I watched them, Now, I did not keep an eye on them solely because I expected or wanted to *make some money* out of my celery-plants; but I kept a careful eye on them because I was working and praying over this great problem,—

"WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT."

What should be done to give these boys an *interest* in their work? What should I do to enable Daniel to set out plants, with the same life and energy that he picked up roots and stones the first day he worked for me? Well, I had a plan in my mind, dear readers, and I was just getting ready to put it into practice. It is a plan that works wonders, if wisely and judiciously used. It is the plan that makes the busy workers in our factory, in a great many departments, enter with their whole souls, as well as with their whole strength and muscles, into their work. Go into the folding-room and see the girls make the sheets of paper fly when it comes paper-day; go watch them in the room adjoining, where they are wiring frames to hold the foundation; take a look into the smoker-room; yes, in the printing-office. How is it they become so expert and rapid that your eye can hardly follow the motions of their hands? Why, it is just on the plan I had proposed with the boys. I went down one morning and spoke to them something as follows:

"Boys, I will tell you how you can make more money than you are making now, both for yourselves and myself. I will give you five cents a hundred for setting out celery-plants, providing you do it so well that they will grow every time. If they die, you must set out more in their places, on your own time. Now, five cents a hundred will make just about the wages you have been making; but I rather think that, if you are working by the piece, you will get along a good deal faster."

One of them replied that he did not think they could work a bit faster than they had been doing, for they had stuck to it just as busily as they possibly could. I told them they could try it, and that, if they didn't do any better, they could have their regular wages by the hour, but that I rather expected they would improve some. Can you guess how it turned out? Why, when I came around that way, an hour later, the boys were just bending over their plants, and making their hands fly as if life and death depended on it. Their frames were filling up as if by magic, and their faces were full of animation and excitement. Daniel looked up honestly, and said something as follows:

"Why, Mr. Root, we are going to make a pile of money if you let us work this way."

"Well, I am glad of it. If *you* make a pile of money I think I shall too, for we are likely to need all the nice celery-plants we can possibly raise."

They did not feel like working till seven o'clock that evening; but as they had made nearly double their usual wages (one a little more than double, and the other, I believe, a little less), they felt as if they could stop at the usual stopping-time, and then take a playspell. During the afternoon one of them ventured the remark, "Mr. Root, if we work by the piece can we stop and look at things, and walk around and stretch ourselves when we are tired?"

I told them that, when they were working by the piece, they were their own bosses. They could work or not, just as they chose, providing the work was got along at a reasonable rate. Now, friends, do you see the difference in working without any particular interest in your work, only to have the hours go along and night come, or in being a partner, as it were, in regard to the results accomplished? These boys *enjoyed* working under the high-pressure principle, in a way they could not possibly enjoy working by the hour, especially when the work was something that had become monotonous and tiresome. One great truth brought out here is, that it is not so much the kind of work we are doing, but the way we look at it, and the motives that prompt us. Why not let everybody work in this way? Well, in the first place it is not possible to arrange all kinds of work so it can be done by the piece. Again, there is a constant disposition to slight the work unless there be some test or condition. In the above it was clearly understood that the plants must be put in the ground so that they would live, and the boys must watch them and water them until they had become rooted. Another thing, we can not well set people at work by the piece unless they are honest and conscientious. Where a workman has a disposition to cheat or to be tricky, the employer will get beaten, sooner or later, unless his eye is *constantly* upon him. With children or younger people, there is a constant danger of misunderstandings and difficulties. Even our good friend Walter complained the first day that his foreman, Mr. Weed, didn't give him full credit for the full number he set out. Now, before we start out in any such kind of work, our details and system should be made so as to avoid mistakes as far as possible. As an illustration: The transplanting-frames we use do not hold even numbers of plants. When they were made we did not think about piece work; but we are going to work to-day to have some frames made that hold an even number, 500 cabbage-plants, or 1000 celery-plants.* In that case the boys will avoid every chance of making a mistake. All they have to do is to count the number of frames full set out, at 25 cts.

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*A frame made 3×4 feet 4 inches *inside*, will just about do it.

a frame for cabbages, or 50 cts. a frame for celery. Before you adopt these figures it may be well to tell you that we have decided —that is, the greenhouse manager and myself—that 3 cts. a hundred is about a fair price to pay the boys and girls for transplanting.

Well, how shall one get this extra vim and interest in his work, who is working for himself, and is not hired by the piece or hour? My friend, how does your wife get that extra vim and energy with which she works on wash-days, or in the morning to get breakfast on time? when there are two or three little chicks in the household to be dressed and fed and kissed and got to sleep, how does she do it all, and make all of her other duties come to time? Well, I think you can tell best by taking a look at her. Watch and see how she economizes, by doing something with one hand while she does something else with the other hand. See her rock the baby with her foot, while her hands fairly fly among the culinary implements, singing with her voice meanwhile, perhaps, to hush the baby. Does *she* enjoy her work too? Why, I think she does, especially if her heart is full of love and praise to the Master. One great element in her happiness is the consciousness of having a husband who is using *his* brain and muscle in the same way to make every thing count for her and these same little ones. Dear reader, are *you* that husband? Perhaps you say you don't like to be crowded all the while on high-pressure principles. Well, may be you think you don't; but my opinion is, that more happiness is found among the real busy people than among those who have not very much to do.

My good father once took a notion into his head that he was getting to be too old to work on a farm. He moved into town and stayed there two years in order to take things easy, and enjoy life. So far as he was concerned, it was a tremendous failure. He worried and fretted, and became more unhappy than he ever was before in his life, and got back to his usual piece of mind only by going back to the old farm and staying there all the rest of his days. Work while you work, and play while you play. I do not know of any better preventive for getting sick than to be so full of business that you have not time to be sick. Suppose you are conscious of a lack of interest in your work. Suppose you have got to feeling that it is a kind of drudgery, and that you hate the sight of it. What shall you do? Well, in the first place, apply your mind to it and busy your brain in plans for shortening and improving and excelling in your allotted task that seems like drudgery, and then get right down to it and push; that is, work as if your life depended on it, even if there does not seem to be any great reason for pushing things along. If you try hard you can see the dimes ahead of you, just as the boys did; and if you put in with that kind of energy and enthusiasm, the dimes will surely come. I have had hands in my employ who did not seem to be conscious they were in any way at fault, when they wouldn't earn over two or three cents an hour, at a fair valuation, on the amount of work they were accomplishing. When spoken to about it they felt hurt, and insisted they were doing good fair day's work. Oftentimes nothing would convince them of the error of their ways; or, to put it more plainly, nothing would convince them that the dawdling manner in which they were working was only next door to stealing, until they were started on piece work. Let some good hand sit down beside them and show them how much could be accomplished in an hour, then tell them they must give up their places or work by the piece, and in a little time they will be astonished to find it an easy matter for them to do as much in one hour as they have heretofore done in *four hours.* Now, this state of affairs is not so very uncommon. There are carpenters and farm laborers and mechanics of different kinds around, hunting for jobs, who, when set at work, do not accomplish as much in four days as good workmen will do in one day. It has always been a puzzle to me to know how manufacturers, knowing these things, could pay men one uniform price for a day's work; and how about reconciling these things with the demands of the strikers? Now, then, if you want to have something to do, you must be alive and awake; and if you want to be happy in doing that which you find to do, you must alse be *alive* and *awake.*

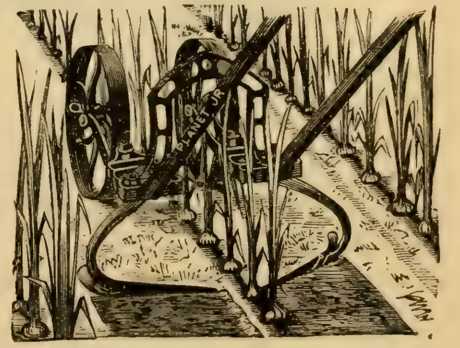
Eight hours has been talked about as a day's work a good deal of late; and, in fact, I believe eight hours has been made a day's work by the laws of the State of Ohio; that is, if you employ a man at so much a day, and neither he nor you mention the number of hours he has to work, he can collect his pay by working eight hours only. I am ready to grant that eight hours of live earnest work is worth fully as much as ten hours of work where there is no life or interest in it; but it seems the demands of the present age point strongly toward making the amount accomplished a gauge of a day's work, and not the number of hours put in. It is an easy matter to get in the hours; and where one who is working thinks principally of getting the hours in, without regard to the amount accomplished, he will very soon be out of a job, or be working for small pay. Money is an excellent stimulant to be used in getting people to move and think lively; but woe betide the one whose only and highest ambition is to *get money;* that is, to get it without any particular regard to the equivalent he gives the world in exchange. Is it not a thousand times better to be working for *Christ's* sake instead of for *money's* sake?

CHAPTER XV.

SOWING THE SEED.

The hand of the diligent shall bear rule; but the slothful shall be under tribute.—PROV. 12: 24.

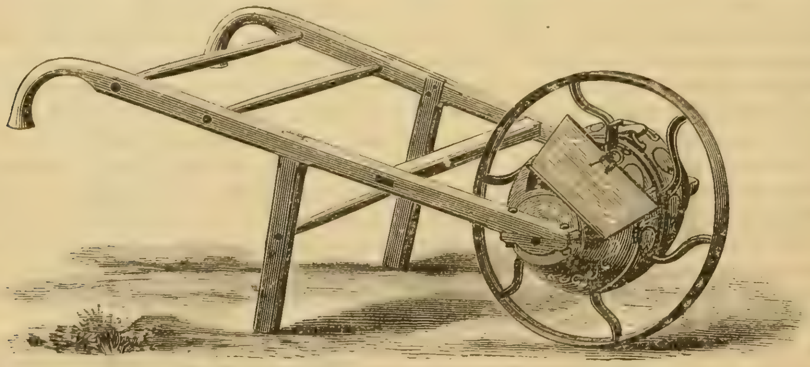
At the close of Chapter XVI. we had our ground prepared, ready for sowing seeds, or for setting out plants. Well, after we decide what is to go on the ground, it is to be marked, for we want our plants or vegetables in rows at exact distances apart, and the rows perfectly straight, or as nearly so as we can well get them. There are many kinds of markers used for laying out the rows, but I am free to confess that I am not satisfied with any thing I ever saw or heard of. You can get along very rapidly in marking your ground by having a marker with teeth set as far apart as you want the marks. I object to every thing of this sort, because it is easily bumped from one side to the other. A good many farmers use a corn-marker with a sort of shoe, or sled-runner, in place of the teeth, and this is, I think, a great improvement; but I have yet to see one where these runners were easily shifted from one distance to another. A furrower and marker is advertised and illustrated in many of our agricultural papers, having a revolving steel wheel to go after the steel runner, that carries the machine steady; but this machine has the fault I have just mentioned, of being tedious to adjust for rows at different distances apart. If you sow your seeds with the drill, the drill itself has usually an arrangement for making a mark for the next row; but I don't like this arrangement, because it is not sufficiently accurate. We want our plants so perfectly in a line that the latest improved cultivators can be made to run within half an inch of the plants. Now, this will be impossible if the plants stand zigzag — one out of row on one side, and one out of row on the other side. Stretching a line does very well for setting out some kinds of plants; but it is too slow and too much machinery — the line must be shifted every little while, and measurements must be made at each end, and even then the rows will be getting wider at one end than at the other, every little while. Something to be drawn by a horse, or a span of horses, that will make two or more marks at once, is what is wanted; and the machine should be capable of adjustment, so as to make these marks of any depth or any width. For planting out small celery-plants, a V-shaped groove, perhaps not more than an inch deep, is all that is wanted, while for planting potatoes we want a furrow as deep as would be made by a one-horse plow. The machine should be capable of doing either, and making marks or furrows of all depths and widths between these. Darnell's furrower and marker comes closest to all these requirements, but it needs improving considerably before it is just what is wanted. Lest you be inclined to think it is a matter of small moment in regard to dropping seeds



IMPORTANCE OF HAVING YOUR GROUND IN STRAIGHT ROWS, ILLUSTRATED.

or setting out plants in a straight line, I want to give you some illustrations. The figure on the foregoing page comes from the catalogue of the "Planet Jr." garden-tools.

The wheel-hoe is arranged with a pair of knives that go close up to the plants, as you will notice. These knives are ground sharp on a grindstone, so they will go through the soil easily, and cut up every thing before them. Well, if your plants are in a line you can set them so close together that the soil will break up fine from one knife to another, so that, after having run through it, the cultivation is finished. If you had them in irregular lines, one plant one side of the line and one plant the other side, you would be under the necessity of doing a lot of hand-work to get your rows clear from weeds. If you have ever weeded rows of onions or parsnips, you can form some idea of how expensive it is. Before sowing your seeds or setting out your plants, it is an excellent idea to strew ashes along in the furrow; or, if you choose, put in guano, properly prepared poultry manure, phosphate, bone dust, lime, plaster, or any other of these substances used as fertilizers. All have their office for different crops or different soils. The handiest thing we have ever used for this purpose is a machine from the "Planet Jr." folks. We give a cut of it below.



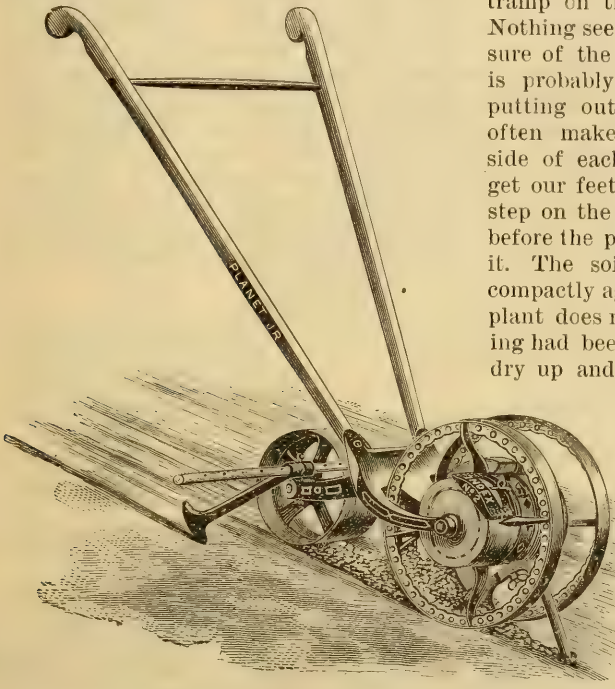
THE "PLANET JR." SEED AND FERTILIZER DRILL.

The machine holds half a bushel. It is filled up at a little door shown in front. It has a hollow drum, or barrel; and if you want to sow bone dust and phosphate mixed together, the machine is the best mixer, perhaps, ever invented. It is easily adjusted, so as to make your fertilizer go in fast or slow, as you choose; and it dusts it, too, among the soil at the bottom of the furrow to perfection. The same implement drops peas, beans, and corn to perfection, although it does not cover them up. I know there are other machines made that sow the seed, put in the fertilizer, and cover it up, at one operation; but it will seldom pay to use such an implement for market gardening, where we seldom sow more than a single acre to any one crop. A boy from twelve to fifteen years old will run the fertilizer-drill, and consider it fun. I should consider it well worth all it costs, for distributing ashes alone. If dry peat is sprinkled under the roosts of your fowls, and the whole raked over occasionally until it gets perfectly dry, this machine will sow it in the drills beautifully. For sowing smaller seeds, such as celery, turnip, cabbage, onion, sage, carrot, spinach, salsify, parsnip, beet, and sometimes beans and peas, a machine is illustrated on the following page.

This machine is much like the other, only it is smaller. It has a roller for rolling the seeds after they are sown. It has also a marker. If the seeds are dropped in furrows of the right depth, and the soil is nice and properly prepared, we usually do the covering with the smoothing-harrow. If the ground is dry, I would then go over it all with a heavy roller.

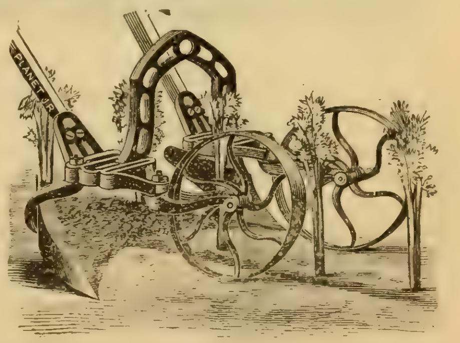
Of course, it is not *necessary* to have any of these drills for sowing seeds, although it was a great convenience and a saving of time. Some market gardeners decline to use seed-drills of any sort, saying they can not afford to take the chances of having ground, so expensively prepared, improperly seeded. They mark out their ground as mentioned above, then the seeds are put in by hand, the owner preferring to see with his own eyes that every foot of ground has the proper amount of seeds.

The next thing is to cover the seeds. Perhaps you think this is a very simple matter, and that nothing further is necessary than to get some dirt over them in whatever way comes handiest. Well, under some circumstances throwing dirt over the seeds will do



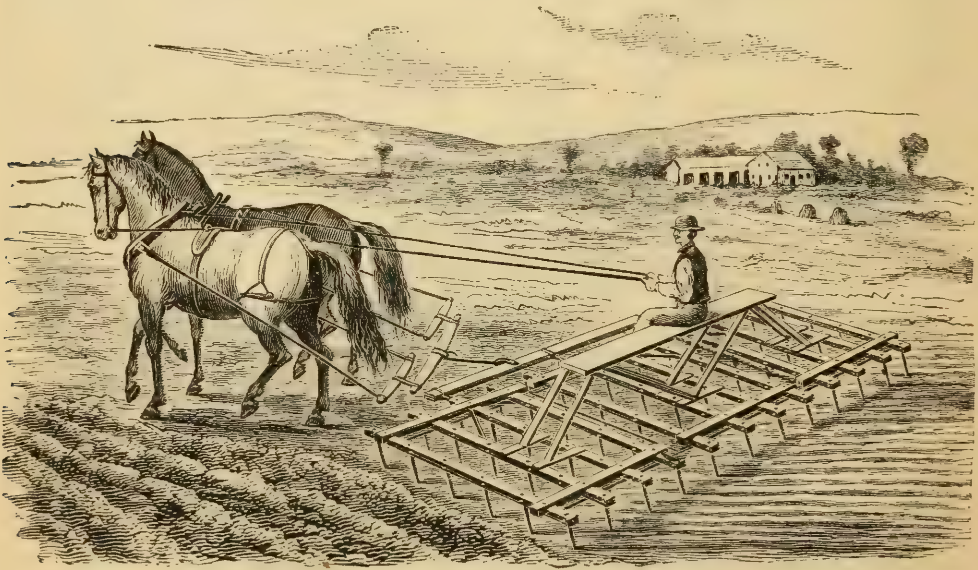
“PLANET JR.” SEED-DRILL, NO. 2.

very well, and then again it won’t answer very well. If the weather is dry and the ground hard, and your seeds are simply covered with loose dirt, if it should not happen to rain they may lie a month without germinating. What is to be done in such a case? If it does not rain you can not make it rain, and watering the whole field to make the seeds germinate would be out of the question. Is there any thing else to be done? Yes, there is something else. After covering the seeds with loose dry earth, step your whole weight on them, and the earth will be so closely pressed to the seeds as to furnish the requisite moisture to cause them to germinate, when they would not do so otherwise. After we had learned the art of making celery-seeds germinate quickly and surely in the greenhouse, as we thought to perfection, we undertook to do it out in the open air; and although we followed the same plan they did not come up at all. We could not tell what the trouble was until one night a big black dog tramped across our seed-bed. In the morning I felt like banishing dogs, both big and little, had I the power. But in a few days every dog-track was full of bright-green celery-plants, and none elsewhere. The weight of the dog had compacted the light peat that we used for covering, so as to make the seed germinate. You have, perhaps, noticed the same thing many times when some great awkward heavy man tramped over your flower-bed. Wherever he stepped, the things all grew, but they wouldn’t grow elsewhere. Peter Henderson has written a most excellent article, entitled, “Gardening with the Feet.” The idea is, that if you want seeds to germinate quickly when it does not rain, just tramp on the soil where they are planted. Nothing seems to answer so well as the pressure of the foot. A heavy roller, however, is probably pretty nearly equivalent. In putting out celery-plants in a dry time we often make them grow by stepping each side of each plant, as close to it as we can get our feet, without injuring it. Next we step on the plant so as to let one foot come before the plant and the other foot behind it. The soil is pressed up so solidly and compactly against the little roots that the plant does not wilt; whereas if the tramping had been omitted the plants would all dry up and die. Remember, however, that this tramping or compacting the soil is needed only when the ground is dry. If you set out plants, or plant seeds, just before or just after a rain, don’t tramp them; in fact, it would have the opposite effect, for it would make the soil bake into so hard a crust that the plant could never get through it. The easiest way of getting the fine dirt over the seeds, unless one has a machine to be drawn by horses on purpose, is the Planet wheel-hoe, arranged as shown below.



THE “PLANET JR.” DOUBLE-WHEEL HOE EARTHING UP.

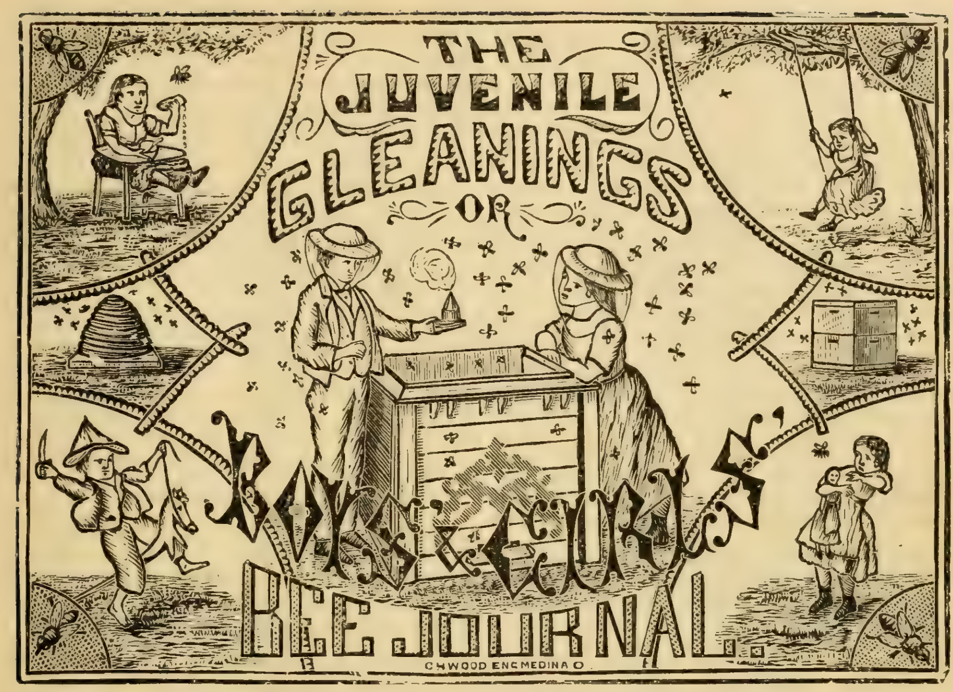
In the above illustration the machine is shown rigged for earthing up celery; but the same arrangement, with the shovels set a little closer together, covers up seeds beautifully, and a boy will do it as fast as he can walk. If the ground is dry he can go slow enough to tramp the seeds at the same time. If a heavy rain comes after the seeds are planted, before they are up, it is sometimes quite a saving of time to go over the ground and break the crust—killing the little weeds before they have come up, and this is by far the simplest, easiest, and most effectual way of killing weeds of any kind. Raking the face of the ground with a fine-tooth rake does the work beautifully. On a larger scale, the Thomas smoothing-harrow does it to perfection, and I wouldn't think of trying to raise corn or potatoes without running this smoothing-harrow over them just before or just after they burst through the surface of the soil. This smoothing-harrow is such a splendid tool that I think I will give you a picture of it here.



THE THOMAS HARROW AS USED FOR CULTIVATING POTATOES.

Terry says a field of potatoes of the proper shape can be harrowed six times over for 90 cts. an acre, and it is pleasant, easy work for man and beast, in contrast with the above plan of cultivating it in the common way, and the smoothing harrow does it ever so much nicer, because it moves every foot of the ground. The potatoes and corn are as effectually cleaned as if you took your fingers and removed the dirt from around each stalk and fined it up and put it back again, as you do when weeding onions by hand. I once harrowed a piece of corn after it was four inches high, and the only horse I had was a colt only half broken. As she was quite young, I used only one section of the harrow. After I got through my cornfield it looked as if it were ruined. The corn that had stood so beautifully in the morning was knocked over and tumbled every way, some of it even broken off. It was my first experience in harrowing corn so large, and I went home that night sick of the Thomas smoothing-harrow, sick of my awkward colt, and sick of myself, because I thought I had made so bad an afternoon of it. In a few days, however, the corn picked itself up and went on growing better than ever before. As it was pretty thickly seeded, the small number of stalks that were broken off could be spared as well as not. It was the best crop of corn I have ever raised. Now, the same principle can be used in all sorts of farm and garden operations. If your ground is in proper order, you can scratch the surface enough to kill the weeds, without injuring a large class of plants, and yet every weed is killed just *before* it becomes a weed.

To be continued July 15, 1886.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

SOMETHING ABOUT SOME VERY NEAR NEIGHBORS WITH WHOM WE ARE, NEVERTHELESS, ALMOST ENTIRELY UNACQUAINTED.

I will praise thee: for I am fearfully and wonderfully made; marvellous are thy works; and that my soul knoweth full well —PSALM 139:14.

AT length the new factory we have long talked of is under way. I would call it an addition to our present factory, but that, on account of insurance, it is to be a separate building by itself. This building is to contain all the wood-working machinery, and must be placed far enough away from our present buildings, so that, if it should take fire, it would not be likely to burn us all up. It is to be 100 x 44 feet. It is a little larger than the main building, first erected on these grounds in 1878. Now, before the work is commenced, a good deal of headwork has to be done. Mechanics and engineers, steam-engine builders, architects, and the oldest and wisest heads of the establishment, have to hold long consultations together. To avoid danger from fire, the engine and boiler are to be located quite a distance from this new wood-working factory. One of the questions that has caused much debate was, Shall we get power into the new factory by running a large shaft from the boiler and engine, or shall we locate the engine in the new building and send the power by means of a steam-pipe? We finally decided in favor of the heavy shaft. Then, again, how shall the machinery be set up? Where shall we run the railroad track that carries in carloads of lumber? How shall we unload and load up? How shall we get finished work from this new factory into the old saw-room, which is now to be used as a store and packing room? One point after another is decided slowly and laboriously; and, a good many times, after it *has* been slowly and laboriously decided upon, something else comes up that makes it advisable to change again and start on another track. After weeks and months we settle down on a plan. Our big stout team, by means of a scraper, excavates room for a basement. Carloads of great heavy stones come in for the foundation. The masons are set at work, and finally the brick come in, carload after carload. When these are in place, the carpenters put in their work, then the tinners put on the tin roof. While all this has been going on, the great machine-shops have been busy, and the new automatic engine of 100 horse-power is placed according to the plans laid down by the oldest and wisest heads in the business, and so on, until, by Christmas, we shall be able to commence making bee-hives, etc., for your use, my friends, another season. We want to be prompt next year, as we should have been this year, had it not been for the burning of our warehouse. What has this to do with neighbors, do you inquire? Well, let us see.

Yesterday morning, when I stepped out of the bath-tub, and began rubbing myself vigorously with a coarse towel, when I had got as far as one of my great toes, something fell on the floor with a loud rattle. Thinks I to myself, "What was that that dropped?" I stooped down to pick it up, and it was the whole nail of my great-toe. It was so thick and heavy and stout, that, only a few weeks before, it had taken almost all my strength to pare it off with my big pocket-knife. What should make it tumble off loose? I glanced down at my toe, but it seemed all right, and it did not seem to have lost any nail at all. On more careful inspection, however, I found that a new nail had grown under the old one. When old Dame Nature got it finished all complete, she gave notice to let the old nail slide, for it was not longer wanted. I told the circumstance to the family, and asked if any one had ever heard of a toe-nail dropping off that way. No one had heard of such a thing. My wife suggested that my toe had been bruised. I declared it had not, for I should have known it. Finally, I remembered that, a few months before, this nail had persisted so obstinately in running its corners down into the toe, that I decided I would cure it so that it would stay cured for quite a spell. I took a file from the counter store, and filed the middle of the nail until it began to show blood from the flesh beneath. Now, I knew by experience that old Dame Nature, in alarm at finding a tender spot without its natural horny covering, would draw in the covering of the nail, attempting to close up the thin place that I had almost filed through. The file cut so much faster than I expected, that I had cut pretty deep before I knew it. Some such spirit or principle seems to pervade the builders or gatherers of a bee hive. This spirit is unanimous. If a comb breaks down and falls on to the bottom-board, they seem to agree at once that the first thing to do is to take all the honey out of it and store it somewhere else. Then they fix it up, according to the best of their judgment. If you crack a comb in a frame in your manipulations, you may think that, if you put it back in the hive, the bees will mend the crack. So they will; but they first take every drop of honey from every cell along the sides of the break. Then they neatly join the broken edges until the comb is entire, and as solid as it ever was; and then, and not until then, they put back the honey. If you will look into the hive and watch them you will find the process is in many respects strikingly like the way in which nature mends a wound or a broken bone in a living animal. She clears every thing out of the way a great deal as the boys have been clearing away the lumber-piles, stones, and rubbish, preparatory to building our new factory. Then she brings in material to knit or weave together the broken tissues and the fracture in the broken bone, just as I expected the corners of the nail to draw up; in fact, the spot where I filed it down so thin soon became a little puckered, or crimped, and the nail stopped growing in from that time forward.

Now let me digress a little once more, and I shall have the foundation laid for my talk to-day about my neighbors. Did you ever notice the bees in a hive? If a young one is hatched out that is sickly or imperfect, they tumble him outdoors as so much rubbish, as much as to say, "We have no use for any thing except good, healthy, perfect bees. Cripples and deformities go by the board." An old bee that has worn himself out with hard labor is treated much in the same way. The same way with the bee that has got the nameless bee-disease, the kind that are emaciated and shining black, and that jerk and twitch. May be you have seen them. The healthy bees catch on to them and drag them out on to the grass. I do not know whether the bees hold a consultation to decide how badly a bee must be afflicted to be hoisted out or not, but there seems to be a sort of method about it. A few years ago people used to say the queen directed all these movements, but we know it is not so. The bridges across the torn and lacerated muscles, or lean meat, are united as neatly as the bees unite the broken honey-comb. Finally the surface of the wound is covered with the different layers of the cuticle, or skin. Even the lines formed by the pores on the inside of the hand all match each other in regular order, after the wound is nicely healed over. If the wound is on the head, in due time new hair grows out.

Now, dear friends, who or what is it that plans this and decides just how it shall be done? In other words, who was it, or what principle was it, in my flesh and blood that was displeased because I filed that old toe-nail so thin? It was not myself, because I knew absolutely nothing about it. Months ago these invisible forces in my body decided to reject that mutilated toe-nail and put in a brand-new one. They did not consult me nor counsel with me, for I was a very astonished individual when that great thick tough horny toe-nail that I had whittled at for so many years rattled down on the floor. Some principle that I am entirely ignorant of has been planning and working all these weeks for my best good; yes, and so solicitous is that principle, or presence, if you choose, for the well-being of my body, that not even a toe-nail was overlooked. This invisible presence, if I may so term it, or this neighbor of mine, that is living within me and for me, has been looking my bodily frame all over carefully, day by day, planning for and mending breaks and weak points. Is it not wonderful? Come to think of it, the Bible says that even the very hairs of our head are numbered. Just think of the earnest and strenuous efforts that this presence, or principle, in us all is making to keep our bodies in health. If we by mistake drink poison, it is the same principle that sets us to vomiting, and hoists out the enemy.

Years ago, one morning when I was dressing I felt a sore place on my side. As I examined it carefully to see how it came about I told my wife it actually seemed as if there were a *pocket-knife* under the skin of my body. Finally the sore spot came to a head at one end, and out stuck a piece of steel. In surprise I got hold of it and pulled it out, and it was a long sharp needle. The only explanation any one could give was, that I swallowed it years before; and this invisible and unknown neighbor of mine had been working and planning hard to get that dangerous foreign body out of my system. It had doubtless passed through the stomach and the different envelopes, the wound healing up as the needle passed through until it got out head first.

Now, then, dear reader, do you not agree with David when he says, "I am fearfully and wonderfully made"? Who is this or what is this law that has been all these ages working for the good of these physical bodies, and yet we do not know it? Truly can we say, "Marvelous are thy works." As I sat down to write this paper this morning it seemed to me more marvelous than any thing I have before witnessed in this wonderful world of ours, to think that, even inside of our fingers and toes, a teeming throng were constantly planning and working for our best physical welfare. No wonder that Paul said, "Ye are the temples of the Holy Ghost;" and that, "If our earthly house of this tabernacle were dissolved, we have a building of God, a house not made with hands, eternal in the heavens."

DO BEES HEAR TIN PANS?

WHY IS IT THAT BEES SELDOM ATTACK BABIES?

MR. ROOT:—Your article in GLEANINGS about bees hearing, makes mamma remember that, when she was a little girl, she lived next door to a lady who kept bees. This was in the suburbs of Hull, England. Every day during the spring she would hear a bell ring in the yard of the next house. She asked grandma what the lady rang the bell every morning for; and for answer, grandma brought a chair and set it near the hedge fence and lifted my mamma upon the chair and told her to look into the yard. Mamma can distinctly remember seeing a woman standing among a lot of boxes, and she had a table near her with a pan and bell upon it, and the air was full of "flies," at least so she thought (she was not 6 years old then); but grandma told her that the woman rang the bell to call the bees to their feed. Mamma was then afraid of bees. She never went into the bee yard, but grandma often did, because, when *she* was a little girl, she had lived with an aunt in France, who kept bees, and she had got accustomed to them.

A MISCHIEVOUS BABY.

I had a little brother, 13 months old, who was not afraid of bees. One day mamma went to town and left him in papa's care; and not being used to caring for babies, papa forgot him until he heard him laughing very heartily. He then went to where the sound was, and found Franky on his knees, with both hands over the entrance of the hive, and the bees were swarming over and around him; and as they would alight on his hands he would laugh very roguishly. Papa was so frightened he tried to coax Franky away, but he would only laugh, and shake his head; so papa ran quick and caught him up and ran into the house. They stung papa, but did not hurt Franky at all. Papa put up high boards all around the hives, but the little rogue would try to get to the bees every time he could get away.

The bees here in California are doing well, and, judging by other wet years, it will be an excellent honey year. One of papa's hives gave him a very large swarm last week, and the surplus box which had been left on was full of brood, with the exception of two cards. After they were cut from the frames they weighed 12 lbs. This was made from the alfalfa, and papa says it is as good as clover honey made in the east. LEWIS HILTON.

Los Alamos, Cal., April 26, 1886.

Thank you, little friend, for the article you have given us. As to whether bees hear the drumming of tin pans, see what is said in another column. I can just imagine your little brother, full of roguish chuckle, stopping up the entrance to the hive with his chubby hands. It *is* a little strange, sometimes, that bees do not attack these little innocents. When Blue Eyes and Caddie were little, although they were among the bees considerably I do not remember that they were stung more than once, and I think this was caused by the bee getting under the clothing and then afterward pinched. I think one sting is all Huber has had so far. My mother told me that she found me, when I was about a year old, poking my head clear down into a hive of bees—the first colony that A. I. Root ever owned; yet I was not stung. Why is it, do you suppose, babies are not attacked more often by bees? Well, I think it is because the child is wholly unconscious of the danger he is in, and therefore does not show any signs of nervousness. Few things will induce bees to sting quicker than the twitching of the face, or nervous motion of the hands and arms. A child never does this, because he is not afraid, and for the very *good* reason that he does not know enough to be scared. If a grown person can control his nerves the bees will treat him as kindly as they do the baby. In fact, I think with most colonies in our apiary I could stand in front of a hive and close its entrance with my hands, and the bees would make no attempt to sting; yet a person unaccustomed to bees would be almost sure to be stung. ERNEST.

BEE-KEEPING IN WYOMING TERRITORY.

WE take GLEANINGS, and are delighted with it. We can hardly understand how you can give so much for so little money. We have the first and only honey-bees in Wyoming Territory, and we were afraid they would not do well in this new country; but they gather lots of surplus honey from the wild prairie and mountain flowers, and it is very white, and fine flavored, and the bees stand the winters here as well as in the States.

I live in a beautiful valley, through which courses a large cool mountain stream in which are fish, wild fowls, and the cunning beaver; and on all sides the grand old mountains rear their peaks of snow above the clouds. I wish you were here to view the fine scenery, and enjoy the bracing, healthy air of these high solitudes. In the mountains are found nearly all kinds of large and small game, such as elk, deer, antelope, bear, mountain sheep, sage grouse, jack rabbits, badgers, wolves, mountain lions, etc.

My pa has a large collection of all kinds of minerals and curiosities of the Rocky Mountains.

JOSIE MEAD, age 12.

Ferris, Carbon Co., Wyoming, March, 1886.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

THE RESURRECTION PLANT; DOES IT COME TO LIFE IN REALITY, OR DOES IT ONLY MAKE BELIEVE SO?

I SEND you by this mail one resurrection plant. I am not acquainted with its history. I only know it comes in large quantities from Mexico, principally Yucatan. Lay the plant in a saucer of water; take it out, and it will curl up and remain so. It is said to keep for ages, apparently without life. It is said, if sore eyes are washed with the water from the saucer, that it will heal them. By allowing it to remain in the water it will put forth branches, which, when separated, will put forth roots, and make new plants. I could, if necessary, get a full history of the plant.

J. J. FITSGERRELL.

Las Vegas, N. M., May 24, 1886.

HOW SHALL I GET RID OF THE ANTS? WILL STONE BOTTOM-BOARDS ANSWER AS WELL AS THE WOODEN?

I am having some trouble this spring with the ants. They burrow around and get into the hives, and, at times, I see them with bees that are not dead; i. e., they have them pulled into their holes. Will they do any harm? I have put powdered borax around where they run, but it doesn't seem to stop them as yet. Would you let them alone till they get ready to leave?

I have just moved my bees to a new place, and put them down as directed in the A B C, but I put them on stone bottoms instead of wood. I dress the flagstone and make the entrance just like the entrance of the Simplicity alighting-board. Will bees do as well on stone bottoms as they will on wooden ones? As yet I have the common bees, but intend to try the Italian bees in the near future.

Marion, Williamson Co., Ill. W. W. GRANT.

There is only one objection to stone bottom-boards, friend G., and I am not sure that this is much of an objection; it is, that they might be cold for bees in cold weather. The fact that such bottom-boards neither warp, split, nor decay, by being placed on the ground, would be a heavy argument in their favor. It is true, they would be very cold in cold weather; but bees do not, as a rule, touch the bottom-board, I believe, in cold weather.

SALT NOT A NECESSARY ELEMENT FOR BEES.

In GLEANINGS of May 1st, 1886, I find an article headed, "More Facts to Show that Bees Need Salt," signed A. W. Osburn. He refers to another article on page 178, from W. H. Greer, entitled, "Salt a Necessary Element for Bees." He then says: "His experience relates only what is an *absolute* fact, that salt is one thing necessary in making up the food of the bees."

I have read over both articles carefully, and find no "absolute facts" given in either that show salt to be a necessary part of the food of bees. My apiary is located a few rods from the bank of a tide-water stream, fed by the Gulf of Mexico. Along its banks fresh water trickles down to meet the salt water. The bees resort to the mud, wet by this fresh water, in great numbers, but never go down to that wet by the salt water. Now here is an "absolute fact" to show that they do *not* need salt. So with the "absolute facts" to show that salt is necessary for other land animals, man included.

Many "absolute facts" might be cited to show that it is no more necessary than whisky, tobacco, coffee, or tea, none of them being food, but, on the contrary, like salt, they possess deleterious properties, and should never be used by any one desirous of enjoying good health and transmitting the same to posterity, for it is written, "The sins of the fathers shall be visited on the children." That deer visit salt-licks is no evidence that it is healthful for them, because their appetites may become vitiated by indulgence as well as that of man.

D. C. UNDERHILL.

Manatee, Florida, May 10, 1886.

Friend U., I know there are people who contend that salt is not necessary for either man or animals; but all must admit, that domestic animals are, most of them, fond of it; and as it seems to add to their comfort and enjoyment, I for one am in favor of letting them have it. Tobacco and whisky are stimulating; but I do not think it can be shown that salt has any such property. I can hardly see it as you do, that your experiment proved that bees do not need salt. May be they had obtained salt already from some other source, and did not need to go to the salt waters of the ocean; besides, the salt of the sea-water is by no means pure salt. Now, is it not possible that these same bees would take up common table salt, properly diluted, eagerly?

IS IT MUD OR SALT THAT THE BEES ARE AFTER?

On page 178, in March number, in W. H. Greer's communication in regard to salt for bees, I do not think he has demonstrated the assertion that the bees were after salt, only he is satisfied that such is the case, and probably were, as far as the meat-house is concerned, for bees like salt. In my opinion, bees work in barnyards, hog-pens, and other places where the soil is properly decayed, or in the right condition for the bees to gather material for capping their brood. I have watched them closely, and have seen them in mud holes, barnyards, hog-pens, and on old decayed wood; but I never saw them pick up a chunk of mud or a piece of rail, nor shoulder a lump of salt. I never followed them into their homes to see whether they unloaded salt, wood, or mud, but supposed that whatever they gathered from such places was material for capping or sealing their brood. I am a beginner in bee-keeping, but am interested in the little fellows. I should like to know what you think of mud balls for bee-cappings. H. A. WEDGE.

Friend, Neb.

Friend W., you have raised an interesting question. I am not aware that anybody has ever found out for sure where the bees get the material for making the cappings for brood-combs; but after what you say, I think it very likely they get it from a sort of slime that rests on the mud after the water has evaporated or sunk into the ground. I should think they would pack the material on their legs, as they do pollen and propolis; and I think some of our careful observers could trace it into the hives, and see how it is manipulated. An examination of the cappings, under the microscope, and of the substance they pick off from the muddy ground, would probably show their identity.

BEES ON SHARES; HOW SHALL THE DIVISION BE EFFECTED?

If not asking too much of you, I should like to have you explain what you say in the A B C book about bees on shares. I have taken 10 colonies of bees, and we were to take what you said in the A B C book to be the contract. Where we differ is in regard to the old stock. For example, 10 colonies in the spring, in the fall 30; how should they be divided? Please explain in detail, as all I want is what is right. I shall be satisfied with what you say. My bees have wintered very well this winter.

Lenox, Ia., April 30, 1886. J. T. HARTUP.

Friend H., it is a very difficult matter indeed to answer such questions as you propound; and about the only answer that can be given is to say it is just as you happen to agree upon. If you receive 10 colonies of your neighbor, and increase them to 30 in the fall, you would have 15 and he would have 15. A good way to divide is to let him keep one of them, then you take one, and so on. The honey and wax can be weighed out and each take an equal portion. In regard to the hive and receptacles for honey, in the absence of any agreement I would say that each one should pay for one-half of these necessaries. As you are to do the work, the cost of an A B C book or a bee-journal should be borne by yourself alone, for your partner may not care to post himself in regard to the business at all.

WHAT OUGHT A BEGINNER TO ACCOMPLISH WITH BEES?

I never handled bees in my life. I have watched others, and I have a notion that, properly handled, a man can make money by just turning his attention to bee culture. I sent to you some time ago for a Simplicity hive and GLEANINGS. I have your A B C book, and like it. I have a notion to increase my apiary of three colonies up to as many as one hand can take care of. I wish to devote my whole attention to bees and poultry.

How much ought one man to clear off from each stand of bees, clear of all expenses, each year, when working for honey alone? After I get my apiary up to 40 colonies, can I sell all the swarms as they come off? What do you think of the poultry business in connection with bees?

A SUBSCRIBER.

My friend, I do not know how we can give any advice, to amount to any thing, in the way you suggest, as so much depends upon the man; but I hope you will excuse me for saying that, as a rule, the one who asks such questions will not be very likely to succeed. Suppose I should say a man ought to make five dollars on every colony of bees he keeps. Some of our leading and most expert bee-keepers might tell me truthfully, that many seasons they have not made even one dollar per colony; or, worse still, that they have not made one copper; so you see, it depends upon the man and the season, and many other circumstances. When you get up to forty colonies, or any other number, you can sell the swarms as they come off, if you have customers, as a matter of course. Circumstances might make it quite convenient to keep both bees and poultry; but this, also, depends on circumstances. Both pursuits require that the bee-keeper be at home, and always on hand to look after them. This is so much in favor of carrying on the two pursuits together.

JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

I HAVE been very much pleased at the way you have been taking hold of the work I have suggested, especially in this matter of folding sections. You have done much better than I had any idea you could. I was wondering whether you might not raise queens. It will be quite an undertaking for little folks; but you have done so well in so many things I rather believe some of the most enterprising of you will succeed in this also. You are to get your mamma or your papa to tell you how, and then you are to do the work *all yourself*. Perhaps the A B C book, page 195, has put it so plainly that you can go to work by directions there given. At any rate, who will be first to report a laying queen of his own raising? I hardly think you could report for the next juvenile number, as it takes some little time to raise a queen. When you have succeeded I want you to tell all about how you did it. If you do well, I will promise to send you some nice little present. I can not say just now what it will be.

A good many of the little friends have been sending their letters directed to me. Although I like to receive your letters, it rather breaks up our order of business, and so will you kindly direct them to A. I. Root?

ERNEST.

A FINE PLACE FOR BEES.

My pa had 20 stands of bees in the fall; he has only 19 now. I have a hive of bees too. This country is a fine place for bees; it has plenty of poplar and linn. NORMAN A. WARD, age 13.

Onward, White Co., Tenn., May 4, 1886.

CASTOR OIL INSTEAD OF CROTON—A TIMELY CORRECTION.

Please correct the mistake in GLEANINGS, May 15, p. 415, in Tommy Brown's letter. It should read, *castor* instead of *croton* oil. It would be very dangerous to use croton instead of castor oil.

TOMMY'S MOTHER.

We are very sorry to have had such an error in our columns, especially in the juvenile department. We hope, however, that mothers will have good sense enough not to administer *croton*-oil to an innocent child, as it would result in almost instant death. Will the friends please take notice of the above?

FROM 30 TO 47, AND 5000 LBS. OF HONEY.

My pa commenced the season of 1885 with 30 stands. He took 5000 lbs. of extracted honey, and increased to 47. He has sold 4 stands, and given Aunt Em one. Pa takes GLEANINGS, and has your A B C book. He says he could not well do without them. Pa and I were looking at the bees the other day, and one stung pa on the finger, and lost its sting. I put it under a glass, on a plate, and fed it honey. It lived 41 hours and 25 minutes. I put one with it that had not lost its sting, and it was lively when the other was dead.

Jonah, Texas. EUGENE WILLIS, age 12.

TURNING THE CRANK TO AN EXTRACTOR.

Pa has 32 colonies. We have one of your extractors, and pa says it doesn't throw any honey out at the top at all. Pa takes GLEANINGS, and I read the children's letters. Pa extracts all his honey, and I help turn the extractor. We have never had any honey candy yet, no matter how cold it was. I have to walk 3 miles to school.

Mt. Erie, Ill. MATIE HEIDINGER, age 10.

Turning the crank to the extractor is another way to help papa during the honey-flow. Little folks can make themselves useful in a great variety of ways if they really think so, can't they? If you have been using an extractor for many years, friend Matie, it is certainly a very singular fact if you have had no candied honey. ERNEST.

CLIFFORD'S EXPERIENCE WITH A COLONY OF BEES.

Last June I bought 3 hives of bees. The first hive that swarmed came out four times, and the fourth time they alighted on a bush. I took a smoker and a hiver. I smoked them first, and put a hiver under them and shook the bush and then they fell into it and I spread a sheet in front and put the bees on the sheet, and after awhile they went into the hive. If they were restless I put a sheet over the hive untill they were quiet. They are Italians. When we put them in the cellar we had five, and we closed them too tight. We put over the frames two thicknesses of cotton and placed the top on. We went to a bee-man and he told us that we packed them too tight, and he told us to take the top off and put a chaff cushion on the top. CLIFFORD LEES.

Port Dover, Ont., Canada.

THE RESULTS OF STANDING IN FRONT OF THE ENTRANCE.

My mamma has three colonies of bees and an observatory hive. Some young ladies were looking at the observatory hive. They stood in front of the hive, instead of at the side, and a bee stung one of them by her eye, and a bee darted into another one's hair, and such a fuss she made! They all laughed to see her pulling her hair down to find the bee that did not sting her. Our bees are making very nice honey now from the new mint or pennyroyal. The young lady who was stung, on her way home had to cross the Wairoa River on a fallen tree. She fell off into the water, and joined the others in a hearty laugh. JESSIE HYDE, age 11.

Otau, Auckland, New Zealand, Feb. 4, 1886.

HORSES STUNG TO DEATH—A WARNING.

When pa had a few swarms of bees, a man tied two horses near them. Pretty soon they heard a noise. The men ran out and cut them loose. One horse ran home. The mare and colt were stung to death. The man was stung very badly.

Morocco, Ind., April 1, 1886. ELVA SKINNER.

Your letter is another one of the oft-repeated warnings, to be careful with our dumb animals near the bees. Frightful accidents have occurred, and will occur, so long as big folks, and little folks too, are careless. Only just the other day, while our new span of Clydesdale horses were cultivating near the outskirts of the apiary, a passing swarm of bees took a notion to alight upon the head of one of the animals. Joe, for that was the horse's name, kept switching his head at the bees as if they were flies. Had not "my pa" almost scolded the driver to make him realize the danger, and hurry the horses away, I am afraid our handsome big Clydesdales would have torn every thing to pieces, or possibly have shared as bad a fate as that of which you speak. ERNEST.

DOES MUTILATING UNSEALED BROOD ENRAGE THE BEES?

My papa has nine swarms. The other day, when he was looking at his bees, he broke a little brood-comb open that was in the milky state. This made the bees angry, and they chased the hens and chickens around the yard pretty lively for awhile. Some of the bees came to the house and got caught in a spider's web on the back porch. The spider came down expecting a fat breakfast, and he took the bee in a loving embrace, but went back in a hurry. Mamma said the bee stung him. He stayed hid for two or three hours; then mamma got him out to see if he was dead, but he seems to be as lively as ever. We have 74 hens and 158 chickens. I take care of the chickens and help take care of the hens. I keep account of the eggs laid. They laid 112 dozen last month. We set 17 hens on 233 eggs and hatched 176. The last of April, when papa took the sections off, he found one colony had put honey in some of them, both upper and under sides.

CLARA LINDSEY, age 10.

Harford, Susq. Co., Pa., May 24, 1886.

Yes, friend Clara, I think you are right in supposing that bees are sometimes enraged when their unsealed brood is mutilated to any extent. Yet it is quite possible that, when your father broke the comb, he jarred the bees on the frames. This of itself would be sufficient to anger the bees.—Your father evidently is an old hand at the poultry business, or he never could manage so many.

MINNIE DOES NOT AGREE THAT HONEY IS NOT GOOD FOR COLDS.

I have just been reading GLEANINGS, and in it I saw Miss Tessie Taylor's letter. It is very good for a ten-year-old girl, but I do not agree with her altogether about honey not being good for colds. It may not be very good for babies, but I don't think it would hurt grown-up people if they would not eat too much. I agree with you, that milk is good for the "honey-ache."

I will give Tessie my remedy for the earache. Take an onion, lay it in hot wood ashes till it is roasted soft; then take it out, squeeze the juice out, put a couple of drops in the ear, and put cotton in.

Last fall I helped my uncle to carry the bees in the cellar, and this spring I helped him carry them out again, and he is going to give me a hive of bees. I am going to help him put sections together this summer, and then I will write again and tell you how many I can put together in an hour. It is very kind of you to make such an offer to the ones who do well in putting them together.

Wilmot, Ohio, May, 1886. **Minnie Rhodes.**

Thank you, friend Minnie. I should be very glad to have you report the number of sections you can put together per hour. Do not get discouraged if, on the first 500, you can not fold as rapidly as little Ella. Remember, practice accomplishes wonders; and practice, if you try hard, will bring a prize. In the meantime let others try also. Perhaps I should say that a small wooden mallet is all you need. A light hammer will do tolerably well, but you will be working at a great disadvantage. Ernest.

HOW JASON CAUGHT HIS SWARM.

I have but one colony, and I will tell you how I came by it. A neighbor's boy and I, on the last Sunday morning in July, were taking a ramble in the woods after a rain-shower. After we were in the woods a few minutes, near by a large tamarack swamp, we heard a noise like the roaring of the wind just before a shower. We stopped to listen a moment, and I at once said that it was a swarm of bees, and, sure enough, it was. They were flying at tree-top height. We immediately began making a noise by whistling, and drumming on a little pail that I had with me, and they began to cluster in the top of a soft maple about fifty-five feet from the ground. I went back and got an old hive-saw and a long rope, and then returned to the tree, and then the fun began. I ascended the tree with saw and rope. At the second attempt I was successful in lowering them to the ground, and got them in the hive, and I did not get stung once. In a few weeks I transferred them to a chaff hive, and they worked rapidly. J. J. H.

Carlton Center, Barry Co., Mich., Jan. 16, 1886.

Thank you, friend Jason. I think you did well, if that was the first swarm you ever caught. You said you began to make a noise by whistling, and drumming in a tin pail. If the bees seemed to be arrested by the sound, and thereupon began to cluster immediately, it would go to prove that bees hear. In this connection I would like to ask the old folks, and little folks too, whether the drumming of tin pans does have an appreciable effect upon a swarm of bees, or is it all notion? Who will tell us? Ernest.

FOLDING SECTIONS AT 1½ CTS. PER 100.

Ma read me what you said about the little boys and girls putting up sections. I have put up hundreds for papa this season, and he gives me three cents for two hundred; but as I can work at them only when out of school I never kept the time. Papa says I do well, and am his little bee-man. I'm eight years old. Brother Willie can not work with the bees; for if they sting him he gets very sick. Papa has lots of bees, and is now taking honey. I help him with it too. **Freddie A. Ellison.**

Stateburg, Sumter Co., S. C., May 25, 1886.

FOLDING SECTIONS AT THE RATE OF 1000 IN TWO HOURS AND A HALF.

I put one-piece sections together at the rate of 1000 in two hours and a half. My brother's bees are doing well. He noticed them bringing in pollen the 20th of March, and noticed them working on fruit-bloom before the 20th of April. About half the swarms have started to work in the sections. As you said we could have our choice of any thing on the ten-cent counter, if we did real well putting sections together, if you think I did well enough, please send me some crystal starch polish.

Nettie H. Cranston, age 11.

Woodstock, Champaign Co., O., May 29, 1886.

HERE IS SOMETHING FURTHER IN REGARD TO THE SAME, FROM PEARL.

I put sections together at the rate of 1000 in two hours and a half. They were the one-piece sections. Brother Fred likes your foundation very well; the bees work on it better than on the flat-bottom foundation. Our plum-trees are hanging full this year, and the limbs are bending with them. We are afraid they will get stung. Our strawberries are getting ripe. We have a large bed of them. There was a hard storm here May 12th, and we had corn up almost large enough to plow. It rained so hard that it overflowed the field. It was the first time for about 30 years it had overflowed. As you said if we did well putting sections together, we could have our choice of any thing on the ten-cent counter, if you think I did well enough, please send me some crystal starch polish. **Pearl Z. Cranston.**

Woodstock, Champaign Co., O., May 25, 1886.

Thanks for the results of your trial. I must acknowledge that you both did extra well—nearly twice the speed of Ella, as recorded on page 415. I kind o' believe you both must be older, and that you had had considerable practice before at folding sections, or you could never have reached this speed. Let me see; little 7-year-old Ella folded 500 in two hours. For the first trial I think that was doing pretty well. At 3 cts. per 100, Ella earned 7½ cts. per hour, and you, Pearl and Nettie, 12 cts. each. Let me say just here, that a thousand folded sections in two hours and a half is nearly equal to the speed of one of our hands who is expert at folding sections. A little practice will surprise one at the rapidity with which he can work. Now if there is any 7-year-old boy or girl who can fold as fast as Nettie or Pearl, I should like to hear from you. At all events I do not wish any of you to strain yourselves in the effort to excel some one else. Master Fred's opinion about flat-bottomed foundation being inferior to other makes, accords with our experiments with the same about a year ago. We sent you both some crystal starch polish, as you requested. If you want it to chew as gum, I fancy you will have enough to last for a season. Ernest.

REPORTS ENCOURAGING.

SWARMING COMMENCED, BUT NO HONEY.

Bees in this section have wintered very nicely, and are in fine condition, if the weather would get warm enough for them to work. We have abundance of white-clover bloom and raspberry, but they do not work any on the clover, yet swarming commenced very early. Some began as early as the 9th of May. I have a case near here where four swarms have been cast from one hive. The prospects are very fair, if nothing prevents, that we shall have a fine season. We are ready, and will try to do our share, and know our little friends will do their part.

Coloma, Mich., May 28, 1886. S. Shoup.

SUGAR VERSUS NATURAL STORES.

I see by reports from different parts of the country, and also from your own apiary, that bees have wintered well, mostly on natural stores. Owing to an almost entire failure of the white-clover last season, probably one-third of all the bees in this section have died where artificial stores have not been supplied. One bee keeper of the "know-it-all" kind, who generally kept from 12 to 25 colonies in nice hives (but not movable frames), has lost every one. E. E. Cross.

Racine, Ohio, May 31, 1886.

500 GALLONS OF HONEY ALREADY FROM WAHHIAH, AND MORE TO COME.

The prospect for a large crop of honey is good at present. I have taken over 500 gallons from wahhiah, from 108 colonies, spring count, and increased to 145. The cat-claw has just commenced, and ought to give me 1200 gallons more. It is all nearly as white as water, and very fine and thick, and weighs 12 lbs. to the gallon. I had no loss in wintering; in fact, I have lost only one colony in three years. D. M. Edwards.

Uvalde, Texas, May 17, 1886.

HONEY FOR SUPPER-TABLE BY MAY 25TH.

I took off enough nicely capped section honey of this season's gathering yesterday to supply my family for supper. The entire crate (Moore's) from which it was taken will be ready to come off by the 1st of June, if the weather keeps favorable. Who can beat it? 3—F. J. Bostick, 9—13.

Greenville, S. C., May 26, 1886.

BEES NEVER IN BETTER CONDITION.

I never had bees in better condition than at present. First swarm of the season was May 20th, and two more since. This is pretty good for Northern Iowa. I attribute it not only to the favorable season, but to the feeding of a barrel of sugar this spring. C. A. Sayre.

Sargent, Floyd Co., Iowa, May 24, 1886.

WAS IT LARGE OR SMALL BUCKETS OF WATER THAT THE BEES DRANK?

The locusts are in full bloom at present, and bees are doing finely. It has been raining here for the past week, and we are having our share of the cyclone. I think the bees of Broers, spoken of on page 336, must be a "new" kind, to drink a bucket of water daily. May be it was a "wee" bucket, or perhaps they had tiny buckets hid away somewhere under their wings. I never saw bees work more on the dandelion than they have done this year. It came in bloom with us just after fruit-bloom.

Oakland, O., May 15, 1886. S. S. Craig.

TOBACCO COLUMN.

I commenced chewing about two years ago. A few days ago I thought I would would quit using tobacco. I heard that if any one would quit the use of it you would send a smoker as a present. If I ever commence using it again I will pay you full price for it. J. C. Stepheson.

Burlington, Burlington Co., N. J., Mar. 8, 1886.

How many smokers did you give away the last year, to those who quit the use of tobacco? It is surely pretty heavy on your pocket-book yearly. I don't use it and never did. C. F. Uhl.

Millersburg, Ohio.

All the smokers we give away to tobacco-users are noticed in Gleanings, for we always require a printed promise before sending the smoker.

I noticed in Gleanings (which is a very valuable journal, and a fine work all through), that you offer free to any one, who will give up the use of tobacco, one of your smokers. I have used tobacco for ten years, but I have given it up, and if you feel inclined to send me a smoker I shall feel grateful. I agree to pay you for the smoker if I ever use any tobacco again. J. Schautschik.

Serbin, Lee Co., Texas, April 26, 1886.

I used tobacco for 35 years. My wife often talked to me of its filth, and injury to my system. I thought several times I would quit the use of it; but not being able, in my own strength, to do so, I kept chewing until December. I can't remember what day, but shortly before Christmas, I quit chewing; and to-day, April 16, I am in perfect health. One of my neighbors told me you would send a smoker to any man who would abandon the use of tobacco. Here I am, trying to live a Christian life. I have given up all for Jesus, and a home in heaven. By God's assisting grace I mean to live right, so I shall be able to die right.

Paul Rudelbaugh.

Severance, Doniphan Co., Kan., Apr. 16, 1886.

A GOOD SUBSTITUTE FOR A CHEW OF TOBACCO; A TALK AFTER UNCOVERING A COLONY OF HYBRIDS.

Mr. Lewis.—"Mr. Barnhard, how do you manage to do any thing with such bees as those are?"

"I quiet them down with smoke."

"Where can any one get a smoker?"

"Of A. I. Root, Medina, Ohio. Do you use tobacco?" At this remark he put his hand in his pocket to let me have a chew, thinking that was what I wanted, but I replied, "I never use tobacco. A. I. Root will give a smoker to any one who will quit the use of tobacco."

He said, "I will quit the use of tobacco. I believe that tobacco is injurious to me; if I ever use tobacco again, I will hand you the money to pay Mr. Root for the smoker."

Brother Root, please send Mr. Lewis a smoker. I will guarantee the pay for the smoker if he ever uses tobacco again. Jacob Barnhard.

Denver, Newaygo Co., Mich., April 24, 1886.

OUR HOMES.

Jesus said unto them, I am the bread of life: he that cometh to me shall never hunger; and he that believeth on me shall never thirst.—JOHN 6:35.

WHO is there who has not at times thought it a little singular that Jesus should so often repeat the substance of the expression in the verse before us? Why should he call himself the bread of life? And I suppose others besides myself have at times thought it a little strange that he didn't choose an illustration a little more elegant in its form. Why should he link together the idea of a loaf of bread with the spiritual needs of the soul? Well, in this point as well as in almost every other in the Scriptures, you are most likely to get help in the study of the Scriptures themselves. When you feel like questioning the wisdom of using bread for a symbol, take your Bible and read a chapter or two before the place where this thought comes in, especially in the fore part of the same chapter where this occurs. The people had become wild with excitement over the startling miracles Christ had been performing. The craze was not so very much different from the way people act nowadays, especially in cities, where a great crowd collects over a comparatively small matter. In their enthusiasm they followed him away off in the country—away from bakers' shops, or any other place where provisions were sold; and with such a crowd as five thousand, even the farmhouses (if they had any such things in those days) would not be likely to supply their wants. The people became hungry and weary, and it was a long way to their homes. The tender heart of our Lord was touched by their wants; and especially was he touched because they had apparently forgotten every thing in their desire to follow him. You know how often he enjoined mankind to leave all and follow him. Well, these people had left all and followed him; and even though their motive in so doing was not one of a very high order, there they were. Very likely a great part of them would have been equally ready to follow something else of a different character; but our Savior does not seem to have considered this; he only feels they are a part of humanity—that humanity whom he loved and whom he came to save. He did not feel at a loss what to do under the circumstances, nor did he doubt for an instant that the Father would honor his request by giving him power to provide bread miraculously. This is evident from the question to Philip.

By the way, there has always been something wonderfully comforting and strengthening to my faith in these little passages where the Master speaks to his disciples in that pleasant, familiar way. We could hardly call it joking, but it was a little bit of pleasantry when he says in that wonderfully kind and familiar way to Philip, "Whence shall we buy bread that these may eat?" Poor Philip! like all the rest of us he was utterly unable to comprehend for a single instant the resources at the command of his Master. Jesus was evidently trying to teach him faith by the question. Why didn't Philip reply, "Lord, thou hast every thing at thy command. We know from what we have witnessed that the whole universe is subject to thee. Speak the word, and they shall be fed"? Instead of making such a reply as that, Philip simply answers, "Two hundred pennyworth of bread would not be enough to give every one a little." Two hundred pennyworth would be equivalent to something like two hundred days' work. Who is there who is going to advance this great sum? Andrew ventured, at this crisis, the information that there was a boy somewhere around with five barley loaves and two small fishes. This boy had evidently had an eye to business, even through all the excitement; and when they started out he wisely concluded that, before they got back, there would be a chance to sell eatables at a figure that would afford a good margin of profit. He probably was not in a hurry; he was going to bide his time, and then get up a corner in the provision market. It seems that Andrew was about as lacking in faith as Philip, for he ventures to suggest, at the close of his piece of information, that five loaves and two fishes didn't amount to very much when there were five thousand to be fed. No one seems to have had the slightest conception of what was going to happen. Now witness the wonderful beauty and simplicity of the manner in which the Savior goes to work. Whatever he did was to be done decently and in order. No rabbles or greediness was to be the result of any miracle that he performed. Before telling what was to be done, he directed that the vast company be desired to sit down upon the grass. They sat down in groups of fifty, probably with passage-ways between them, so the disciples could wait upon them in an orderly and systematic manner. The whole company obeyed him. Why should they not obey one whom they had seen perform such wonders?

Years ago, here in our little town of Medina it was decided to have a free dinner one Fourth of July. Everybody who came, no matter who, was to have a good dinner, not a penny to pay. The project was a kind one, and the good women who had it in hand labored early and late to make it a success. Officers were appointed to keep order. How do you suppose it turned out? Why, after it had been advertised in the papers, the ignorant, beer-drinking rabble for miles around got hold of it and rushed in in such a body that the officers were powerless to preserve order. The tables were emptied before they were even fully set; and while respectable people held aloof, these greedy ones gorged themselves and filled their pockets, and trampled the rest under foot. So much for a free dinner. How differently the Master managed it! Here was a miracle in good earnest. Five thousand people witnessed it. They had the bread and fish in their hands. Skeptics might, doubtless, claim that it was an optical illusion; they did not have any bread at all, they only imagined it. But the trouble is, they ate of it and were satisfied. It would have to be a pretty stupendous optical illusion to convince a hungry man he had been fed when he hadn't. They had tasted the food, each and every one of them; they saw it miraculously multiply with their own eyes. If there were any doubting Thomases among the crowd who felt like demanding something plainer before they would believe, they had got it. I think I am safe in saying that there was not a single doubter among that whole five thousand. From that time forward they had faith in Jesus — that is, they had faith in his power to provide free dinners.

Now, I need not tell you that this was not what the Master was striving for. He felt touched because of the hunger and faintness of so many, and he felt a thrill of joy in being able to provide for these temporal wants, no doubt; but this was by no means the end and object in view. He came not, simply to give bread to the hungry, but he came to save sinners. After the people had been fed he sought to teach them spiritual lessons. Why did they want to make him king? Doubtless because they rightly supposed he would be better able to give them free dinners than any other king the world contained, and this was the great sum and substance of their aspirations. Would free dinners every day have made them better men? Some of our great cities have tried the experiment, and perhaps those who had the matter in charge came out a little sadder as well as wiser when the experiment was over. Dear reader, would it make a better man of you to give you a *free* dinner every day? To be sure, not. It would, without question, do you harm. "By the sweat of thy face shalt thou eat bread." This is the law of our being, and it has never been recalled. The miracle answered its purpose, however, and the people flocked to the other side of the lake to find this wonderful prophet. They were in haste to see him use this wonderful power again. They even suggested a variation in the programme, and thought that manna sent down from heaven in the good old way Moses used to manage it would be about the thing. Jesus strove to turn their thoughts to spiritual things. His life was a life of self-sacrifice, and no true life was possible for them unless they took up a similar life of self-sacrifice. Said he in substance to the multitude, "My friends, it is not bread you need to make you happy; it is all very well so far as it goes, but it won't answer at all. My Father giveth you the true bread from heaven." And again, "For the bread of God is he which cometh down from heaven, and giveth *life* to the world." They did not comprehend very much what he meant—probably they didn't care; but they replied promptly, "Well, give us this bread;" or, in other words, "All right; let us have this bread you tell about; we are ready for it." They thought they were, but they were not, any more than you and I are when we in our prayers ask God to bring us near to him, even though the way be through crosses and trials. Now Jesus replies to them, "I am the bread of life; he that cometh to me shall never hunger; and he that believeth on me shall never thirst."

His meaning was something like this: They were greedy and selfish; their principal thought was of something to eat, and how to get it with the least possible exertion. Their wants, their pursuits, and their ideas of happiness were low and animal; they had no idea of self-sacrfice; they had no idea of bearing burdens for the general good of humanity. He calls them to think of higher things. He tells them if they devote their lives to the pursuit of food and drink, and something to wear, they are seeking for that which is short-lived and unsatisfying. "Labor not for the meat which perisheth," he says to them, "but for that meat which endureth unto everlasting life." To make it plainer, let us consider humanity as it grows up untrained. We sit down at the table. The whole family are present, perhaps aunts and cousins. As soon as the blessing is asked, Huber calls out, "I want some beans." Now, I do not want our children to grow up selfish, and thinking of themselves first; and as I rebuke the little fellow, whom we all love so much, I state it to him in this way: "Do you want some before cousin Mabel has any?" He sees the point at once. Cousin Mabel is a guest for the time being, and his own good sense, and I hope his former teaching, tells him that a guest should be treated with honor and preference. When the question is fairly before him, whether he shall have some beans first of any one, even to the exclusion of cousin Mabel, whom he loves, baby even though he is, he sticks his tongue off to one side of his mouth, and casts his eyes downward a little, ashamed of himself. Perhaps he does not answer in words; but I know by his looks that his little thoughts are running something in this way:

"No, papa, I do not want to be waited on before cousin Mabel is. I want to be a good boy, and not a selfish one."

Now, this multitude to whom Jesus was speaking was a selfish multitude. They were in the habit of being greedy. Many of them, perhaps, were guilty of gross crimes in giving way to these untrained animal impulses. Jesus tells them that, although he could, by his mere volition, call forth bread in unlimited quantity, it would not be for their own good. "Come, follow me," he says; "don't be thinking all the time of something to gratify your own selfish appetites. Taste the joys, and experience for a little time the blessedness of laboring for the good of others. Follow me, and I will make you fishers of men." Now, if you will read this whole chapter through, and all along through John, you will notice how hard Christ labored and taught to give them a glimpse of the blessedness of a life devoted to the good of the people, or to the saving of souls, if you choose.

We are most of us seeking pleasure in some form or other in this world. We are thinking of that which will give us the most happiness; and in a certain sense it is right we should do so. We are human and full of wants, and full of likes and dislikes. We like to enjoy ourselves, and we like to give full sway to the faculties God has given us in the enjoyment of pleasure. Now, what is it in this world that really satisfies us most? What is true happiness? The subject came up recently at our young people's prayer-meeting. I told them that the happiest hours I had ever spent in my life were in going to teach a Sunday-school, a few miles off in the country. At first I used to go with a horse and buggy, and I found a good many young people in our town who liked to go with me. Almost any of the boys were pleased with an invitation to go to the Sunday-school Sabbath afternoon. Now, in our town there is quite a tendency among young people to go out buggy-riding Sunday afternoons. Our livery-stables do a larger businsss Sunday than any other day of the week, and I soon began to be afraid that the buggy-ride had more attractions to many than the Sunday-school work itself, so I decided to go on foot, that my motives and example might be in no way misinterpreted; or I walked five miles and back again every Sunday after two o'clock, for Christ's sake. Need I tell you that I enjoyed going on foot ever so much more than I did when I rode? When the weather became stormy, and the walking was difficult, or perhaps when I was compelled to take an umbrella, I started off in the rain, then I specially enjoyed it. Yes, the happiest hours I think I ever enjoyed were when I plodded along through the rain to meet the circle of boys and girls that I was sure would be on hand to greet me. Would I ever get tired of such work? I am sure I should not. I was weary in body, perhaps, many times, but elevated in spirit. Did I ever doubt the presence and the promise of the Savior at such times? Never, for an instant. Now, then, how does this tally with the text, "I am the bread of life; he that cometh to me" (that is, he that comes to me for enjoyment and for happiness) "shall never hunger; and he that believeth on me" (he that comes to me in faith, and drinks of the water that I have to offer all my followers) "shall never thirst"?

May I tell you a little piece of good news? This Sabbath-school was discontinued at the time of my father's sickness and death, and it has never been started up again since. Only this week a message has come to me that my old friends in Abbeyville, and perhaps some younger ones that have grown up, would be glad to see me every Sunday afternoon again, if I should care to go. Need I tell you that my heart bounds at the thought of it?

Several of my former pupils are now working for me, and I am glad to say that most of that Sabbath-school are now enrolled as members of churches of different denominations. Do you wonder when I tell you that I look at these young people almost as if they bore some sort of relationship to me? Some of them are married, and have homes of their own. They often bring things to me to sell. Do you think it strange that I almost always feel like buying whatever they have to offer, or giving them the preference because they used to be my children? Well, now, suppose your work in life is such that a great circle of people have learned to look to you more or less for the bread of life, or have considered you as in some sense a spiritual adviser, what effect should it have upon you? As I consider these things, that old prayer that I have told you about so often comes up of itself, "Lord, help; Lord, help." This prayer comes up because I realize how very, very human I am.

The people wanted to make Jesus king after he had fed the multitude. Some one has said that the reason why they preferred him for king to anybody else just then was because they thought it likely he would give his subjects a "free dinner" *every* day. This was far from his intention. It is true, he wanted to reign in their minds and hearts as king of the truth; but far, oh, very far was it from his thoughts of having any thing in common with an earthly ruler. His little band of followers, and those whom he commissioned to perform miracles as he did, were very common, humble people. I have sometimes thought they were dull people, slow to comprehend and slow to believe. When he told them to beware of the leaven of the Pharisees they thought he was chiding them because they had forgotten to put any bread in the boat. When he told them about coming into the world to save sinners, Peter declared that he should do nothing of the kind, and when he told them of his approaching death on the cross, not one of them seemed to get a *glimpse*, even, of his mission and his office. It has been a comfort to me to think they were such commonplace individuals. If Jesus loved them and called them his own, may it not be possible that he will love *us* and call *us* his own in that great day? Jesus so loved the world that it was a pleasure to minister to them. No doubt he felt a thrill of joy when he ministered to their natural hunger; and who can tell of the joys that cheered his in many respects sad life when he saw glad souls rejoicing because of this spiritual bread which he was so ready and willing to give? Now, dear friend, is it difficult for you to understand or comprehend the great truth that he was endeavoring to teach when he said, "I am the bread of life"? Is it possible that you, my friend, have been striving and worrying and fretting over this great problem of furnishing bread for you and yours? If so, have you, too, forgotten the bread that Christ can give, and of the water of life that he is glad to furnish? He said again, "I am the living bread which came down from heaven; if any man eat of this bread, he shall live for ever." We are told that even his chosen disciples were stumbled at this latter saying. Many called it a hard saying, and said, "Who can hear it?" And some went back and walked with him no more. Is it not so, even to-day? Religion is becoming fashionable. Many are attracted. But some, I fear, after they get to the true source, and find it to be a life of self-sacrifice and hardship, a life of incessant toil, with many times little reward and no thanks, they are offended and turn away. Thank God, however, there are some like Simon Peter, who, when Jesus asked if he too would go away, replied, "Lord, to whom shall we go? Thou hast the words of eternal life." And I believe a good deal as

Peter did then, that one who has once tasted of the bread that Jesus gives will nevermore find peace or enjoyment anywhere else.

Not very many mornings ago it was wet and rainy. I had on my rubber boots, and was chasing about in the grass and mud, looking after some of our "small boys," getting things ready for the wagon to start out as soon as the clouds promised to clear away, when an old friend accosted me something in this way: "Well, old fellow, may be that is *your* way of enjoying yourself; but if I owned such a factory as you do, I don't think you would catch me chasing around in the mud and wet after them sort of chaps."

"Well," said I, "if you were running such a factory, what would you do—put on some fine clothes, and sit around and talk with big men?"

"Well, you may just bet your last dollar *I* would."

After he had gone I thought it over. Perhaps he was right in thinking I bestowed more pains and bodily strength on some of my boys whom I pay only six or seven cents an hour than I did on those who have large salaries, and work by the year. Was it right? I thought it over, and concluded, "Yes, it *is* right. The older ones don't need me. Their minds are already formed; they are trusty, and can take care of themselves. These I have been chasing after have hardly started in any direction, but they are growing rapidly day by day, and are fast forming habits, either good or bad. If, by chasing around in the wet, and, may be, taking hours of my time, I can get them started in good ways, and, may be, instill important truths in their little minds, I am content; nay, more: while I am doing this and looking out for the lambs of the fold, I know that He to whom I belong will take care of the business, the money, and all else pertaining thereto; and, furthermore, I have this written promise that there is "henceforth a crown laid up for me, which the Lord, the righteous judge, shall give me at that day; and not to me only, but unto all them also that love his appearing."

Besides, I am happy, very happy, chasing around in the wet with my muddy boots and old clothes. Those who find comfort in expensive clothing and ease may have them. I do not envy them a bit. Give me the clouds and the rain, the blue sky and the bright sunshine that comes with it; give me the free open air, with God's love welling up in my heart, and these little friends to look after and to care for, and I am content. I am his and he will take care of me; and, most glorious of all, he will take care of *them* if I succeeded in bringing them to him.

CIRCULARS RECEIVED.

The following have sent us their price lists:

H. P. Langdon, East Constable, N. Y.,—an advertising sheet of bee-supplies.

F. J. Crowley, Batavia, N. Y., a 12-page circular of bees and queens, and apiarian supplies.

C. A. Stillman, Hornellsville, N. Y., a 6-page list of bee-supplies.

John H. Howard, Holme, near Peterborough, Eng., a 60-page price list of apiarian supplies. It is fully illustrated, and it gives one a good idea of the present state of apiculture in England.

I am being asked my opinion of the new circulars Mrs. Cotton is again sending out quite plentifully. The statements she makes, and the prices she charges for the goods she sends out, would, in my opinion, forbid her being classed with our regular supply-dealers, to say nothing of the strings of complaints against her that have filled our bee-journals for years past.

PURE HONEY.

MORE CONCESSIONS FROM OUR FRIENDS OF THE PRESS IN REGARD TO THE FALSE STATEMENTS ABOUT THE HONEY IN OUR MARKETS.

WE clip the following from the *American Grocer* of June 9:

> In March the *Christian Union* printed an extract stating that honey was adulterated. The assertion brought forth a letter from an Illinois correspondent, stating:
>
>> There is absolutely no such thing as manufactured or artificial comb honey, sensational newspaper articles to the contrary notwithstanding, and one when buying it can be almost as sure of getting a perfectly pure article as if buying fresh eggs or strawberries. In years past, when liquid or extracted honey was worth as much again as it is now, it was largely adulterated by city firms that repacked it for the retail trade; but since its price has fallen to from four to eight cents a pound, this abuse is the rare exception and not the rule.
>>
>> As long as four years ago, Professor J. Hasbrouck, in order to ascertain the truth regarding the alleged prevalence of this nefarious practice, procured a large collection of specimens of honey from all possible sources—from commission houses dealing exclusively in honey, from others with a miscellaneous stock, from grocers and marketmen, from the tons of noted bee-men, reporting suspiciously large average per colony, and from small consignments of obscure producers. Besides these, he received a great many packages for analysis from persons made suspicious of honey by such paragraphs as yours. He examined all carefully with the polariscope, and in every case found every box of comb honey, and every package of extracted honey not repacked in the city, absolutely pure, with but a single exception — one sample of comb honey containing a small percentage of glucose syrup, which had been fed the bees to keep up brood-rearing during a dearth of pasturage.
>
> The letter was sent to Lyman C. Root, editor of *Bee-Keepers' Magazine*, an expert, and for whose integrity the *Christian Union* gladly vouches, though among bee-culturists he is so well known that he needs no voucher. He states that "the points above given are well taken," and says:
>
>> The facts, in brief, are these: To manufacture honey-comb, fill with honey, and cap it over, is simply an impossibility. Many strictly reliable individuals, as well as leading bee-keepers' associations, have at different times offered large amounts of money for every pound of such manufactured honey. I think I am safe in saying there is not a more strictly pure article of food used throughout the world than our comb honey; and, indeed, at present I might include our liquid honey also — unless it is such as is sometimes tampered with after it passes out of the producer's hands.
>>
>> We have State and county organizations in nearly every State of the Union, and all bee-keepers, as well as dealers generally, are closely watched, and our interests guarded in the closest manner.
>
> If the press generally were as diligent as the *Christian Union* in refuting false charges regarding the food supply, there would soon be an end to sensational reports of adulteration, from press and from pulpit.

The above is so good, and so right to the point, we can easily excuse the mistake our friends of the *Grocer* make in calling our good friend L. C. Root the editor of the *Bee-Keepers' Magazine*. No more able man than L. C. Root could have refuted the false statement; but if we are correct, his field is bee-editor of the *American Agriculturist*.

JUST HATCHED.

AN ALARMING CASE OF BEE-FEVER.

WHAT, a queen? No, not a queen nor a queen's husband nor a queen's servant, but an enthusiastic apiarist; and already they are saying, "He is going to succeed." Well, I prefer success, and hope that their prophecy is correct.

I am by nature a chicken-fancier; and always, when I talked chicken, my wife would talk bees. I always thought that, had I invented the bee, I would certainly have left out one point, or else made it blunter; but now I think that very *ing*redient the finest point in the entire invention. Why, I now get shouting happy in less than half a second, when my mind is brought suddenly to contemplate this point in the honey-bee.

A few days ago I came to the knowledge of the fact, that when she whom my children call ma was a little black-eyed girl she had her playhouse under the same tree with the bee-hives, and that she amused herself by the hour in watching their industry. I said to myself, "Now I understand my wife's enthusiasm and devotion." I got into my buggy, and started for the most successful apiary in this part of the State, to buy, for my wife, one or two first-class colonies. On my arrival I found the busy little proprietor transferring and remodeling hives. She had help, but not enough, so I joined the party, and for three days I was one of 'em. I caught the bee-fever, and caught it bad; so bad, indeed, that before the sun went down the first day an order for two chaff hives in the flat was written to the editor of GLEANINGS.

The work went on, and the fever raged, and rages yet. In a very few days the hives came, and they certainly were in the *flat;* and for a number of hours, as we studied the "great many pieces," we felt a flattening influence coming out of the flat hives which flattened us flat. How I wished for the "model to work by," or for a printed slip giving light on such parts as are hardest to guess out!

But we have got them together at last, and they are gems, and gems, too, which make the old apiarists sick, as they think of the houses their bees live in. I find myself on the wing, and, like any thing else just hatched, I find it a difficult matter to alight; but I have caught a twig, and will rest for awhile.

Hilliard, O., June 9, 1886. JAS. R. RICKETS.

Why, friend R., you are located near by that energetic and enthusiastic little woman Mrs. Jennie Culp; and if you helped her three days, no wonder you got the bee-fever, for she is one of the most successful honey-producers in the State of Ohio.—No wonder you had difficulty in getting that chaff hive in the flat set up, without a model to look at, or an A B C book.—I suppose now that she whom your children call "ma" is happy too; and, by the way, I can not think of any happier sight on this green earth of ours than a husband and wife who love bees and chickens, and who delight to work among them, studying God through his works as the hours go by. May much peace and great happiness be with you two, friend R., and don't fail to tell us more about it. If the good wife should feel like putting in a word now and then also, be sure to encourage her in so doing.

NOTES AND QUERIES.

A CHANCE TO GET A SWARM OF CYPRIAN BEES FOR NOTHING.

I have a strong colony of Cyprian bees, *pure.* The queen was sent to me last summer. I will give the colony to any reader of GLEANINGS who sends in his name first, if the one sending will pay for hive and trouble of packing, which will be about $1.00. These bees are so very cross that I do this to get rid of them, and send them where I may never see them again. I got more stings in five seconds yesterday from this colony than I have received from my Italians of over 575 colonies in 2 years. They stung me so that I was speechless for over 20 minutes. Smoke only makes them worse. Who wants them? If no one will take them I will brimstone them. First name that comes gets them.

F. BOOMHOWER.

Gallupville, Scho. Co., N. Y., May 19, 1886.

ALSIKE CLOVER—EARLY CROP FOR HAY—SEED.

We have some alsike, sown one year ago. We want to take a crop of hay early. Will it yield a crop of seed afterward, the same as we do with the common red clover? C. F. UHL.

Millersburg, Ohio.

[Friend U., you can get a nice bloom on your alsike, if you cut it off early, just before it begins to blossom; but you will get only a partial crop of seed in this case.]

PRICKLY COMFRY AS A HONEY-PLANT.

Last spring I bought a plant from a bee-man in New York. It is called "prickly comfry." It was recommended as a honey-plant. This spring it is all blooms, and in the bottom of the cups there is a drop of pure honey. Can the bees get at it? It seems too deep for their little bills. It is surely a great honey-plant. I wish I could send you a sample bloom. J. J. B. MCELRATH.

Centre, Ala., April 28, 1886.

[We have a large fine plant of the prickly comfry now in bloom in our garden. Like the one you have, there seems to be considerable honey in the blossom; but as yet, the bees do not seem to have found it.]

ALSIKE, HOW TO GROW.

I see in the last GLEANINGS that Dr. Miller can not get a good stand of alsike clover. I was born and raised on the estate in Sweden whence it has its name—Alsike, and happen to have an old man at work for me here, from the same place; and inquiring from him how they raised it at home he said that unless it is sown just as snow melts away in spring it will certainly be a failure. He said further that he has many times sowed on the snow and with the best results. F. G. LINDBERG.

Port Orange, Fla., May 31, 1886.

BROOD IN SECTIONS.

On page 128 of A B C you state: "I have never seen any pollen nor any eggs carried into a frame of sections where separators were used."

Well, I am only a novice, but I have seen young bees in sections. In 1884, out of over 400 sections placed on my hives I found three or four containing young bees sealed over.

Rabun Gap, Ga., May 24, 1886. W. R. CURTIS.

[Your experience is very unusual, I think, friend C. Since the above was written in the A B C, some cases have been reported where the queen got into the sections, even though separators were used; but I think the rule as given in the A B C book has comparatively few exceptions.]

OUR OWN APIARY.

IMPORTED ITALIANS THE BEST HONEY-GATHERERS.

THE white-clover bloom is now fairly upon us, and the bees are just beginning to drop in at the entrance. When honey is coming in freely it is only necessary to watch the entrance of the hives to determine what colonies are the best workers. In a large apiary there are always some colonies that are much better than others, and a glance at the entrances during a flow of honey very quickly, and very correctly, too, shows whether the bees of this or that colony are good workers. At the entrance of good honey-gatherers the bees may be seen to dart out and in in quick succession. When there is a copious flow of nectar the bees will often drop a few inches from their entrance, preferring to crawl in for the remaining distance.

Hearing the bees roaring over my head one forenoon as I neared the apiary, I determined to see what were our best working colonies in the apiary. Some stocks were very conspicuous for dropping at the entrance—much more so than some of their neighbors. In turn, as my attention was arrested by that peculiar popping in and out at the entrance of some of the colonies, I examined the slates whereon was tabulated the previous record of the colony, together with the kind of queen. Now, I confess I was greatly surprised at the uniformity of results indicated by the slates. What did the tablets say? The bees that were the most industrious—those that had the most honey in the hives—were the progeny of *imported Italian queens*. "Oh!" but some one says, "you have a lot of imported queens you wish to dispose of." But, look here, my friend; I did not *know* when the dropping at the entrance of any particular hive attracted my attention that said colony had an imported queen. In fact, with a few exceptions I do not know nor can I remember what kind of a queen each colony possesses, out of the 420. I rely entirely upon what is said on the slates. The two Kimbers have the care of the apiary, and I go among the bees whenever I can find spare moments from the factory. Now, without the aid of memory or any previous knowledge, I could point out with scarcely an exception a colony that was then in possession, or did possess, an imported queen. By referring to the slates I found that I was correct. So surely did the progeny of the imported queens make themselves manifest at the entrance, that I could scarcely believe my eyes when reassured by the little tablets. To show you that I was not mistaken, a number of the hives in question were opened. The combs, many of them, were nearly full of honey, and the edges of the cells were whitened, and little burrs of wax began to appear. There was only one colony whose bees were not the direct progeny of an imported queen that especially attracted my attention. But the slate showed that it was an extra nice select tested queen, bred from an imported mother.

Mr. Kimber, our apiarist in charge, says for two or three seasons he has noticed, as a rule, a marked difference in the energy of bees from an imported Italian queen, over the progeny of queens of the same race, bred in this country for three or four generations back. Several days ago he had mentioned this superiority to me, but, thought I, "It's all in your eye," Subsequent investigations, as recorded in the foregoing convinced me that he was about right.

Again, you will remember that our colonies were wintered on select combs of nice sealed honey. To obtain these combs, a number of colonies were set apart, some of which were the progeny of imported and some of home-bred queens. Of this lot, the colonies that produced the most honey were from imported queens.

Whatever may be the valuable qualities of queens bred in this country, whether by selection or not, I do not believe we can improve upon those reared in their own country, with the advantages of native climatic conditions. The dry climate of Italy is bound to produce good energetic worker-bees; or, in other words, it is the old question of the survival of the fittest—sink or swim.

Our friend Doolittle, in a recent number, does not speak very favorably of the imported queens, and yet he says, in the same article, that he never has had more than one imported queen in his apiary. He bases his judgment on this one imported queen, and from the daughters not only of this queen but from other imported queens. We import a hundred or so of queens from Italy every season, and their bees have been watched side by side for years in our apiary with the progeny of home-bred queens; and, as a rule, the imported have demonstrated their superiority.

CARNIOLANS POOR HONEY-GATHERERS.

While I have been watching closely other colonies, the Carniolans have received their due attention. I am compelled to say that they are poor honey-gatherers; in fact, when honey has been coming in tolerably well they have barely supported themselves, and yet they have been given every advantage. The colony has not yet been divided, as is the case with all our other stocks, and, in consequence, it is the strongest colony we have; and yet small nuclei of Italians have actually more pounds of honey than this swarm. When the mother of this swarm was received, the cage in which she came was marked "very fine." If she is one of the best, I do not believe that we wish to invest very largely in the mediocre. The other Carniolan swarm which we have is no better. Several, whom I do not now remember, claim that they are great comb-builders. As honey has been coming in freely, I inserted two frames of foundation between two frames of brood of the Carniolan swarm; at the same time in like manner frames of foundation were inserted in nucleus Italian swarms. These frames were given nearly a week ago. The Carniolan swarm has scarcely done any thing yet at their foundation. Hardly 48 hours had elapsed when the Italian nuclei had pulled theirs about all out. The action of the Carniolans at the entrance is sluggish, and, to say the least, the bees are lazy. I do not claim that the same characteristics are true of all Carniolans, but I do insist that they are true of two colonies of this race in our own apiary. It is not my purpose to injure the trade of those who have Carniolans for sale, however much it may look that way; but I wish to urge the friends to be cautious about investing too largely in them.

SALT IS A NECESSARY ELEMENT FOR BEES.

On page 502 of this present issue, D. C. Underhill says, quite vehemently, that bees do *not* need salt. You remember some time ago I told you that the application of salt effectually kills the weeds at the entrance of hives. This spring, as usual, the salt was sprinkled in front of each entrance, and the result is that all our hives have nice clean entrances. What has this to do with salt for bees? In the evening, after the first rain has wetted up the salt, bees may be seen at the entrances licking the salt. Now there is something about this salt that they like. Again, for several years we have had an atmospheric-jar feeder of water located in the center of the apiary, that the bees might come there and drink; but the bees scarcely ever went near it. Finally it occurred to the apiarist to add a little salt to the water. The result was very satisfactory; for at any time now the bees may be seen at this jar, taking a good drink. If you don't have success in inducing your bees to drink water from a feeder, add a little salt, and note the effect. ERNEST.

GLEANINGS IN BEE CULTURE,
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 15, 1886.

But the very hairs of your head are all numbered.--MATT. 10:30.

BINDERS FOR GLEANINGS.

OUR enterprising friends, Barrett & Co., have lately given us a beautifully embossed binder, very much handsomer than the plain ones we have sold for so many years. The best part of it is, the price is just the same as it has always been; viz., 60 cts.; by mail, 12 cts. extra for postage.

HYBRID BEES VS. FULL-BLOOD ITALIANS.

WE have for several seasons had a customer who orders hybrid queens with pounds of bees. When we are out of hybrids we send him untested Italians instead; but he says he would rather have the hybrids, because he has better luck with them. Is it *possible* we are making a mistake in driving all of the black blood out of the country ?

ANOTHER BEE-BOOK.

AND now it is the Rev. W. F. Clarke who has written a book, and it is published by Jones, Macpherson & Co., of the *Canadian Bee Journal.* This book is unlike any other bee-book, inasmuch as it is all poetry. It has not made its appearance yet; but the simple fact that it comes from the pen of W. F. Clarke is a guarantee of its being a valuable addition to our bee-keeping literature. The price will be 25 cts. per copy, or five copies for one dollar.

THE $1.50 HONEY-EXTRACTOR.

SEVERAL of the friends have written in regard to this, as it has been advertised somewhat extensively. To be able to reply understandingly we sent and got one; but, when received, it proved to be no honey-extractor at all, but the *inside* of one only, and that inside was *in the flat.* We did not take the trouble to try to make an extractor out of it according to the directions. Perhaps some might succeed with it, and it might be considered right to charge $1.50 for the arrangement; but it certainly is not right to advertise such a thing as a *honey-extractor.*

BEE-KEEPING FOR THE CLERGY.

FROM the *Congregationalist*, of May 20, we take the following clipping, written by our old friend and pastor, A. T. Reed, formerly of this place, now at Chardon, O. We started him in this pursuit, and the following tells how he has succeeded:

> WHY MINISTERS SHOULD KEEP BEES.
>
> *For the pecuniary profit.* One minister, year before last, made $50 from four colonies; last year, $20 from four, and developed them to twelve.
>
> *For health.* It is the kind of exercise especially adapted to the clergyman's needs; outdoor, light, absorbing.
>
> The bees need the most attention in the time of the minister's greatest leisure—say from May to September—and necessitate no thought or care in the winter months, when the minister is the most occupied.
>
> *For study of insect life.* The instinct of bees is of the highest order, and is a source of wonder and admiration. With a colony of pure Italians in your back yard, you may daily watch almost every process of bee-industry and life, immediately under your eye, without danger, and with a charm of enthusiasm, once experienced, never to be forgotten.
>
> *For illustrations.* There are more sermons in bees than in trees, stones or running brooks.
>
> *For discipline.* To receive the occasional inevitable sting with equanimity, quietly place the sting under the microscope, in the interest of science, and admire and commiserate the bee who thus gives his life for the protection of his commonwealth, is to acquire a self-control greater than his who taketh a city, and a philosophy surpassing the Stoics. The minister who can conquer the 40,000 mad bees of a single colony will develop a spirit of self-control, persistence, heroism, and generalship not without its use in the pulpit.

HOW TO MAKE FOUNDATION.

OUR machinist who makes the comb-mills has made a great improvement in the knives for cutting the rolls, and the process is somewhat changed also, so that our new comb-mills are much superior to those we have formerly sent out. Our old 10-inch comb-mills would not turn out as thin section foundation as mills specially made for the purpose; but the improved 10-inch mill will now make as nice an article of thin foundation as the 6-inch mill. The 10-inch mills in our wax-room now make both thin and heavy foundation; but to do this the rolls should be *perfectly* clean. In fact, you can not do satisfactory work on either thick or thin foundation unless the rolls are free from particles of wax, which will gradually work into the cell-walls. Clean the rolls often, or you will become disgusted with the whole business.

HOW TO CLEAN FOUNDATION-ROLLS.

The easiest and most expeditious way of cleaning the rolls that we have tried is turning a jet of steam on to them for five or ten minutes, or till the rolls feel hot to the hands. While the steam is blowing, the rolls should be turned backward and forward. The action of the steam is to melt the particles of wax, and then to blow it off in fine dust. Next turn off the steam, and then scour with a brush and boiling soapsuds. When again you run sheets of wax through the rolls as thus cleaned, you will be surprised at the improvement.

The one great objection, however, to the use of steam is that few are so situated as to be able to use it. Our girls have cleaned the rolls with gasoline with very satisfactory results, as benzine or gasoline absorbs wax very readily. As the latter method is not quite so rapid, and would also affect our insurance, we use and prefer the steam, though to the majority of our friends who have comb-mills the gasoline will be found the most convenient.

I need hardly tell you that the utmost care is to be exercised in handling gasoline. In washing rolls, or even in having an uncorked bottle around, be sure that no lighted lamp or candle is within several feet; and if you do not do the washing in the open air, open the doors and windows wide, so that the explosive vapor may be blown out before a lighted lamp or match is brought into the room.

P. S.—Our new improved mills will be the same price as quoted in our price list.

REDUCTION IN THE PRICE OF BEES AND QUEENS FOR JULY.

Owing to the continued favorable weather we have decided to allow a discount of 10 per cent over and above all other discounts given in our price list on all bees and queens, excepting on our untested queens when ordered alone; but if with pounds of bees, or colonies, the above discount will be allowed on them also.

48 IMPORTED QUEENS ALIVE AND IN GOOD ORDER, OUT OF A SHIPMENT OF 50.

We have to-day unpacked our first shipment from our friend Bianconcini, for the season, with the above good result. These are all young queens, raised this year; in fact, they were reared expressly for our trade. Now, we have in our apiary 25 imported queens, shipped last fall, and wintered over. These will be 10 per cent less than the lot just received.

EIGHT TONS OF WAX MADE INTO FOUNDATION UP TO DATE.

The low price at which we have been offering foundation has given us another big trade in our foundation department. We have used eight tons of wax so far, and as yet we are just in the height of the honey-flow. Two or three years ago we made fourteen tons of foundation. Our business is still booming in other departments, though we expect trade will drop off soon. Goods of all kinds are going off with little or no delay.

THE NEW EUROPEAN SILVERHULL BUCKWHEAT.

Our friends may remember that we some time ago mentioned the fact that Peter Henderson claimed to have something in the way of buckwheat quite superior to any thing heretofore disseminated. We sent at once for a bushel of the seed, for a sample. It has a smaller-sized grain, quite distinct from any thing that we have ever before handled; and we are happy to say that we have been able to secure a lot of 25 bushels of this new buckwheat. Instead of $5.00 a bushel, however, the price charged by Peter Henderson, we shall furnish it for $2.50 per bushel. In smaller quantites than a bushel, the price will be just double that of common buckwheat; viz., 70 cts. per peck, or 6 cts. per lb. If you want to see what it looks like, we will mail you a small package for 5 cts.

THE COMMERCIAL STANDING, OR RATING, OF BEE-KEEPERS AND SUPPLY-DEALERS.

I suppose the friends know that we have for years been in the habit of keeping a record of the business habits and financial responsibility of nearly every one who advertises extensively in our line of business. Furthermore, the Bradstreet Commercial Agency are in the habit of coming to us for information in this matter. As a matter of course, there are those who call us impertinent, and request us to attend to our own business; and we beg leave to say that we intend to make it our business to protect bee-keepers in every way in our power; and we do not see how we can serve them any more faithfully than to give warning promptly when we think the time has come to give notice that certain parties are not to be trusted. We shall, however, give due notice to the delinquent that we shall have to publish him if he does not make good his promises, and he will have ample time to straighten up or make arrangements before he is published, if he wishes to do so. Now, where disagreements and dissatisfaction come up between two parties, both known to be reliable, we do not care to have the matter referred to us; in fact, we have nothing to do with matters that seem to be only differences of opinion; but we do wish to be promptly notified when any one who advertises extensively does not keep his promises, or who receives money and does not make prompt shipments according to agreement. One reason why we like to be notified is, that we do not wish to continue the advertisement in our columns, of any man who is not able and willing to do all he agrees to do.

SLUG-SHOT FOR KILLING CABBAGE-WORMS, ETC.

In answer to many queries as to how to apply it, we reply: Take a piece of cheese-cloth, or any other thin fabric, say a foot or a foot and a half square. Pour about a teacupful of the slug-shot in the center of the piece of cloth, and catch the four corners up with your hand. Now walk through your cabbages, and with a quick jerk send a cloud of slug-shot down into the center of each plant or head of cabbage. We can not see that it makes any difference whether it is applied when the heads are damp or otherwise. Enough of the dust lodges on the foliage to kill the worms. So far as our experience goes it is sure death to them. With potato-beetles, however, it does not seem to be so certain in its results; neither have we been very well satisfied with the way it acts on the little black flea-beetles. Slug-shot is a poison, no doubt; but the poison is so diluted with some other substance that there is very little danger that any thing will be damaged or in any way injured for table use, even though the material be dusted on quite freely.

EGGS FRIED IN THE SOLAR WAX-EXTRACTOR; NO JOKE THIS TIME.

June 12.—To-day being unusually warm (85° in the shade) the thought occurred to me to try the solar wax-extractor. After going back of the factory, it was opened up and set in position in a twinkling. Very soon the thermometer indicated 235 degrees. I (Ernest) next went into the cook-room (an adjunct for convenience to the factory hands) and obtained an egg and a shallow tin pie-plate. In a moment more old Sol was smiling warmly upon the broken egg. After a lapse of 15 minutes the egg was nearly cooked. In 5 minutes more it looked tempting to a hungry stomach; but I am sorry to say I wasn't hungry just then. I left, and soon forgot all about it. When I returned in an hour afterward the egg was burned so as to be unfit to eat. For melting wax, the new solar wax-extractors are a grand success—no daubing, no soiled clothes, or wax-stained floors; and, best of all, your better half will rejoice with you. If you haven't any, and think you can't afford it, perhaps she will forego the pleasure of a new hat. The price of the solar wax-extractor we advertise is $3.00, all complete.

OUR TEN-CENT FIRE-BALLOONS.

ERNEST suggests that it is time for us to give them a notice; but I replied that I couldn't exactly see where they came in in bee culture. Perhaps we might mention them in the line of home interests. Huber has been teasing all the spring, "Papa, can't we send up a balloon?" I told him it was too windy. But finally, last evening, when he made his oft-repeated request, just about sundown, the weather seemed to be just the thing; in fact, the air was so still that the first balloon started almost straight up. When at a certain height a soft breeze wafted it to the eastward; 100 feet higher, another breeze started it northward, and a little higher still, a third current carried it to the west, so that when it came down it dropped not very far from the point of starting. About the time three or four had ascended, we had quite a picnic of all the children in the neighborhood, and they brought them back to be sent up over again as fast as I could put on new combustibles and scratch matches on the sidewalk where I sat, boss of the entertainment. Price of the balloons, 10 cts. each. If wanted by mail, 17 cts. each. Extra combustibles, 1 ct. each, or 10 cts. a dozen. If you want the balloon to go extra high, tie on two of the combustibles instead of one. Each balloon is furnished with one combustible.

AN ADJUSTABLE VEST-POCKET WRENCH FOR ONLY A DIME.

WHEN we succeeded in getting an adjustable wrench for 35 cts. we thought we had done a big thing, and so we did; but now one of the enterprising firms down East has actually got out a little wrench that we can retail for only ten cts., by buying them in lots of five or ten gross at a time. When shut up, the wrench measures just 4 inches in length. When the jaws are opened wide they will get hold of a nut one inch square, and from that down to nothing. In working on a farm, in a mill, or handling any kind of a machine put together with bolts, these little wrenches are invaluable. One day we were working out in the field with the cultivator. It needed a different adjustment; and just as I began to look cross on account of the delay in our work, Mr. Weed fished one of these out of his pocket, and began turning the nut. Said I, "Why, Mr. Weed, where in the world did you get that nice little wrench?"

He replied, "Mr. Root, I bought that for a dime from your ten-cent counter." And then I found out that John (John is the purchasing clerk now) had bought a lot of them, and put them on the counters before I even got around to look at them. I said right away that we wanted a "carload" of them and I think so still. That is, when all the friends all over the world find out how handy these wrenches are it will need a carload to supply the demands of the trade. Next month we will try to give you a picture. If wanted by mail, add 6 cts. each extra for postage.

A FOLDING YARD-STICK FOR ONLY 5 CTS., ONCE MORE.

THESE were taken out of our price list some time ago because we could not get them. We have now, however, not only the same thing, but something better still. While one side of the measure is graduated to inches and eighths of inches, the other side is graduated on the metrical system, being just one meter in length. Each fold is one-tenth of the meter, or a decimeter, just as a dime is one-tenth of a dollar. Then each decimeter is divided into tenths, or centimeters, just as a dime is divided into cents; and as a cent is the one-hundredth part of a dollar, so is a centimeter the hundredth part of a meter. Then each centimeter is divided into tenths; each division is called a millimeter, or thousandth of a meter, just as a dollar is divided into mills, or thousandths of a dollar. In short, the meter is divided into lengths, just as a dollar is divided into values. It is well worth 5 cts. to you, to see how the decimal system works. The meter is something more than a yard, being a little more than 39 inches, hence it bears no exact relation to a yard. The unit for the meter is made by taking the ten-millionth part of the earth's circumference lying between the equator and the north pole, the meridian running through Paris. The price of this wonderful measure is only 5 cts. If waited by mail, 2 cts. each extra for postage. Besides all of the above valuable qualities of this little implement, it is the nicest thing to give the baby you ever saw. He will fold it and unfold it, and keep playing with it for hours and hours; and every morning when he wakes up it will be just as new—at least for a time, unless your baby is more than ordinarily quick to detect old playthings.

TINNED WIRE NO. 30 ON A SPOOL HOLDING JUST ENOUGH FOR 100 FRAMES.

FOR the convenience of many friends, we have had our tinned wire put up in spools of the above size. The amount required is 10 ounces. Price of the same, 15 cts.; 10 spools, $1.25; 100, $12.00. If wanted by mail, add 12 cts. each extra.

KIND WORDS FROM OUR CUSTOMERS.

THE NEW WHEELBARROW.

The wheelbarrow and other goods arrived in good time. I am very much pleased with the same. The wheelbarrow is the nicest I ever saw.

Bernardsville, N. Y. WATSON ALLEN.

HOW OUR BEES GIVE SATISFACTION.

Those four cages of bees, each containing a queen, came to hand promptly, and in good shape. I received them Saturday evening and carried them eight miles in a buggy, through the rain. I kept them in the house till Monday forenoon, and then introduced them in hives full of combs and some honey, and in less than an hour the bees were all over the lawn, thick with dandelion blossoms, gathering honey and cleaning house, apparently as much pleased with their new home as a boy going fishing. I admire your prompt and straight way of doing business, for which you have my thanks.

Omer, Mich. S. B. SHRAUGER.

BEE-HIVES
—AND—
ITALIAN QUEENS

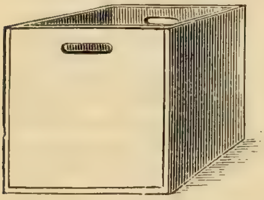
After June 15th, queens, $1.00; 6 for $5.00; 12 for $9.00. Bees by the pound, same as queens.

No. 1, all-in-one-piece sections, 4¼x4¼x1⅞, and 1¾, per 1000, $4.00; 10,000 for $37.50.

B. J. MILLER & CO.,
12-13d NAPPANEE, ELKHART CO., IND.

POTATO-BOXES

(TERRY'S).



These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Although they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price 25 c each; 10, $2.25; 100, $20.00. In the flat, including nails and galvanized iron, $1.75 for 10; 100, $16.50; 1000, $150.

A. I. ROOT, MEDINA, OHIO.

CHEAP!

Full colonies in Simplicity hives, and honey enough to winter, for only $4.50. *Will ship, last of July.*

DAN WHITE,
11tfdb NEW LONDON, HURON CO., OHIO.

ITALIAN ❧ CARNIOLAN QUEENS.

Bred in separate apiaries, away from other bees. Warranted Italian or untested Carniolan queens, in May, $1.25; 6, $6.75; June, $1.10; 6, $5.90; July, $1; 6, $5. State which you prefer, Italians bred from my *Bellinzona strain*, or *Golden Italians*. I am prepared to please all.

BEES AT REDUCED RATES.

For full particulars, and prices of tested queens, bees, etc., send for circular and price list. Satisfaction guaranteed. **CHAS. D. DUVALL,**
9tfdb **Spencerville, Mont. Co., Md.**

FOUNDATION In Iowa! See Exchange Column.
W. H. UPTON, Loveland, Potta Co., Iowa.

LEWIS V-GROOVE

ONE-PIECE SECTIONS

Down, Down, Goes the Price.

First Quality, White Basswood, One-Pound Sections, In lots of 500 to 3000, $4.00 per 1000.

SPECIAL FREIGHT RATES.

If 3000 or more are wanted, write for special prices, delivered to you, freight paid by us.

G. B. LEWIS & CO., 9tfdb
April 15, 1886. **Watertown, Wisconsin.**

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db
A. F. STAUFFER & CO., Sterling, Ills.

SECTIONS, $4.25 PER M.

7-12db **S. Y. ORR, Morning Sun, Iowa.**

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4-3db

PURE ITALIANS.

	May	June 1 to 18	June 21 to Oct. 1
Tested queens	$2 50	$2 25	$1 75
Untested queens		1 25	1 00
Bees per pound	2 00	1 00	90
Nuclei per comb	90	65	50

All communications promptly responded to, and all questions cheerfully answered.
8-13db **S. C. PERRY,** PORTLAND, IONIA CO., MICH.

The BUYERS' GUIDE is issued March and Sept., each year. ☞ 280 pages, 8½ x 11½ inches, with over 3,500 illustrations — a whole Picture Gallery. GIVES Wholesale Prices direct to consumers on all goods for personal or family use. Tells how to order, and gives exact cost of everything you use, eat, drink, wear, or have fun with. These INVALUABLE BOOKS contain information gleaned from the markets of the world. We will mail a copy FREE to any address upon receipt of 10 cts. to defray expense of mailing. Let us hear from you. Respectfully, 7-12db

MONTGOMERY WARD & CO.
227 & 229 Wabash Avenue, Chicago, Ill.

DO YOU EAT CANDY?

Send $1.25, and I will express 5 lbs. of Todd's Honey Candies, same as made a sensation at last Pennsylvania State Fair. Remember, every pound sold helps the honey-trade. Special rates for quantities for fairs. Dadant Foundation always in stock at market prices. Bees, Queens, Hives, Smokers. Vol. 1 of Frank Cheshire's new book mailed free, $2.50.
914db ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.

VANDERVORT

COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

BOOK FREE. Our catalogue for 1886 contains 45 pages; 31 are devoted to bee-keeping. It treats the different operations clearly and practically. It is just what the beginner needs. Tells how to use the various implements, and embraces the following subjects: Who should Keep Bees? Location of Apiary; Handling Bees; Hives; Implements; Robbing; Italianizing; Swarming; Surplus Honey; Feeding; Diseases and Enemies of Bees; Wintering Bees; Marketing Honey; and a complete list of supplies. This book will be sent free to any address by WATTS BROS.,
9tfdb Murray, Clearfield Co., Pa.

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24	2	2 rolls of 281 s f.
38	37	26 rolls of 316, 2 of 317, 1 each of 632, and 285 s. f.
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34	30 rolls of 283 sq. ft. each.
36	22 rolls of 300 sq. ft. each; 1 each of 288, 279, and 285 square ft.
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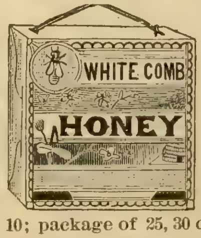

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A. I. ROOT. Medina. O.

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KIND WORDS.

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF ENTOMOLOGY,
APICULTURAL STATION,
N. W. MCLAIN, *Agent in charge.*
Aurora, Ill., June 25, 1886.

Mr. A. I. Root, Medina, Ohio:—

DEAR SIR:—Please accept my thanks for the copy of GLEANINGS kindly sent to my address here, and for the kindly mention of my work and the favorable indorsement of the same, which you have been good enough to make. It is my intention to do my duty under my instructions, and to serve the bee-keeping industry to the extent of my ability. The aid and encouragement received from those in whose interest this Station was established is appreciated, and is of great service.

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Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.
P. L. Viallon, Bayou Goula, Iberville Par., La. 1tfd
C. W. Costellow, Waterboro, York Co., Me. 1-23
Kennedy & Leahy, Higginsville, Laf. Co., Mo. 23tfd
E. Kretchmer, Coburg, Montgomery Co., Ia. 23tfd

$2.50 CHEAP $2.50

During the rest of the season I will sell three Simp.-size frame nuclei colonies, all worker comb, with 1 lb. of Italian bees, and nice tested Italian queen, for only $2.50. Safe arrival and satisfaction guaranteed. I have for sale a fine lot of untested queens at 75c; tested, $1.00. Send for circular.
12-13d F. W. MOATS, THE BEND, DEFIANCE CO., OHIO.

QUEENS UNEXCELLED.

From Mr. Benton's best imported mothers, very low. Send for circular to
8tfdb S. F. REED, N. Dorchester, N. H.

ITALIAN QUEENS

TESTED, $2.00; UNTESTED, $1.00.

MISS A. M. TAYLOR,
12tfdb MULBERRY GROVE, BOND CO., ILL.

1880. **1886.**

Headquarters in the North.

Steam factory, fully equipped, running exclusively on *BEE-KEEPERS' SUPPLIES.* White-poplar and basswood one-piece and dovetailed sections. Vandervort thin foundation. Send for free samples and illustrated price list.

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HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

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APIARY FOR SALE.

90 **COLONIES**, in splendid condition; 20 acres land, large new frame house, 70 new hives, 12,000 4¼x4¼ sections, tools, etc. One of the best honey-producing localities in the State of Iowa. Immediate possession. **C. A. SAYRE,**
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QUEENS, 1886. UNTESTED,

From select imported mother. After May 15, $1.00. Wax worked into fdn. for a share, or by the pound. Satisfaction guaranteed. **THOS. & BENJ. YOUNG.**
10-15db LA SALLE, LA SALLE CO., ILL.

BEE-HIVES,

One-Piece Sections, Section Cases, Frames, &c.,

OF SUPERIOR WORKMANSHIP, FROM

SMITH & GOODELL,

Manufacturers of and Dealers in

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ROCK FALLS, WHITESIDE CO., ILL.
3tfd *Send for Price List.*

CARNIOLAN

QUEENS & BEES A SPECIALTY.

Send for Descriptive Price List and Circular.

9tfd **H. F. SHANNON, Clarksburg,**
(Formerly of Spring Hill.) **Decatur Co., Ind.**

F. HOLTKE'S 3-FRAME NUCLEI, WITH $1.00 QUEEN, FOR ONLY $2.00!

Three-frame nuclei, with $1.00 queen, from 15th of May on, $2.00. Combs built in Simplicity frames, and well stocked with bees and brood. 10-11-13d
Fred'k Holtke, Carlstadt, Bergen Co., N. J.

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FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address

5tfd **J. P. H. BROWN, Augusta, Ga.**

HARRINGTON'S AD.

BEES CHEAP!

I have the finest lot of Queens and Bees I have ever raised in my 13 years' experience, and should like to have everybody see them. I will sell at following low prices:

SELECT TESTED (VERY FINE) **$2.00**
TESTED - - - - - - - **1.00**

My Queens are nearly all mated with drones from an imported Italian Queen. Half-blood Holy-Lands, Cyprians, and Albinos, at same price.

H. B. HARRINGTON,
May 26, 1886. **Medina, O.**

BEAUTIFUL

FOUNDATION

And very choice all-in-one-piece **SECTIONS**, V-groove — wholesale and retail, and exceedingly cheap. Send for Samples and Free Price List of every thing needed in the apiary. 6tfdb
(Near Detroit.) M. H. HUNT, Bell Branch, Wayne Co., Mich.

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. G. B. LEWIS & CO.,
Watertown, Wis.

BEES BY THE POUND,

AND UNTESTED QUEENS A SPECIALTY.

One pound of Bees, $1.00. Queens, $1.00 each. Express charges prepaid on orders of 10 lbs., to any part of the United States except California and Oregon. Write for discount on large orders. Orders from dealers for a weekly delivery of queens solicited. Safe arrival and satisfaction guaranteed. Make money orders, drafts, etc., payable at Baton Rouge, La. JOS. BYRNE,
7tfd WARD'S CREEK, EAST BATON ROUGE PAR., LA.

PURE ITALIAN QUEENS.

100 READY EVERY 30 DAYS.

Untested at 75 cents; 10 for $7.00. Tested queens, $2.00 each. All bred from a selected imported mother. Cells raised in full colonies.
10tfdb D. G. EDMISTON, ADRIAN, LEN. CO., MICH.

SEE WHAT THIS IS.

Two-frame nuclei of the finest strain of Italian bees; combs full of brood, strong in bees, with an extra select tested queen, for $2.50. Three frames, $3.00, or two for $500. The frames are L. size. Satisfaction guaranteed. **J. A. BUCHANAN,**
12tfdb Holliday's Cove, Hancock Co., W. Va.

BEE-HIVES

—AND—

ITALIAN QUEENS

After June 15th, queens, $1.00; 6 for $5.00; 12 for $9.00. Bees by the pound, same as queens.

No. 1, all-in-one-piece sections, 4¼x4¼x1⅞, and 1¾, per 1000, $4.00; 10,000 for $37.50.

B. J. MILLER & Co.,
12-13d **NAPPANEE, ELKHART CO., IND.**

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

Batchelder's Drone and Queen Trap

Is the only one made that does not hinder the bees in their work. Send 85 cents for sample. Send for circular, and see what A. I. Root says about it.
10tfdb **J. A. BATCHELDER, Keene, N. H.**

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

REDUCTION IN PRICES.

We hereby notify our customers that there is a reduction in foundation from the prices quoted in our *March* retail price list. All parties interested will please mail us a card for new prices.

CHAS. DADANT & SON,
11d **Hamilton, Hancock Co., Ill.**

Italian Queens sent by Mail.

Untested queens from imported mother, April, $1.25; May, June, and July, $1.00. After April, per half-dozen, $5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

Foundation - Mill For Sale.

One ten-inch Root comb-mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $15.00. The list price of a new mill of this kind is $20.00. **A. I. ROOT, Medina, O.**

CARNIOLAN QUEENS.

Having located an apiary of this new race of bees in an isolated place, surrounded by high mountains, where a honey-bee was never seen until we placed these there, we have two of the finest queens Mr. Benton could furnish to breed from, and can furnish queens of undoubted purity at the following prices:

June 1,	Queen,	$3 50;	½ dozen, - - - - $18 00
July 1,	"	3 00;	" " - - - - 15 00
Aug. 1,	"	2 50;	" " - - - - 12 00
Sept. 1,	"	2 25;	" " - - - - 10 50

ITALIAN ❊ QUEENS

of the best strains, bred in a separate apiary, 40 miles distant, warranted purely mated:

June 1,	Queen,	$1 00;	½ dozen, - - - - $5 00
July 1,	"	1 00;	" " - - - - - 5 00
Aug. 1,	"	1 00;	" " - - - - 4 50

Address **J. B. MASON & SONS,**
MECHANIC FALLS, ME.

600 LBS. OF BEES ON HAND YET.

Bees, $1.00; queens, black or hybrid, when I have them, 35 cents. Queens raised from imported mothers, after July 1, 65 cts. by mail; 50 cts., with 1 lb. of bees by express, charges paid by me, as in May.

THOMAS GEDYE,
12tfdb **La Salle, La Salle Co., Ill.**

SIX WARRANTED ITALIAN QUEENS for $5.00; twelve for $9.00. Single queen, $1.00. Tested, $1.50 each. Simplicity sections, $3.75 per 1000, first quality. J. R. GOOD, Nappanee, Ind.
12tfdb

FOR SALE AT COST.

200 1½-story Simplicity hives in flat; 40,000 one-piece one-pound sections; 75,000 one-piece 2-lb. sections, size 5¼x6; 10,000 brood-frames, V-shape; 5,000 broad frames for sections; 200 1½-story Simplicity hives, nailed and painted.

Address R. L. SHOEMAKER,
12-13d Newcomerstown, Tuscarawas Co., O.

ITALIAN AND ALBINO QUEENS.

Choice tested Italian queens, reared from a select imported queen, Root's importation, $1.50 each. Warranted, $1.00 each; six for $5.00. Albinos same price as Italian. Safe arrival and satisfaction guaranteed. Make money orders payable at Salem, O.

F. H. SCATTERGOOD, P. M.,
12-13d **Winona, Ohio.**

HEADQUARTERS IN THE SOUTH

FOR THE MANUFACTURE AND SALE OF

BEE - KEEPERS' ∻ SUPPLIES.

The only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, etc. The Viallon and Root Simplicity Hives a Specialty.

ITALIAN QUEENS,

Untested, in April, $1.25 each; $13.00 per doz. From May 5 to June 1, $1.10 each, $12.00 per doz. After June 1, $1.00 each, $10.00 per doz. Tested, $2.50 each; select tested, $3.00 each to first of June. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

With pure Italian queen, containing 3 pounds of bees when received; in April, $4.00; after May 25, 25 cts. less. Safe arrival and satisfaction guaranteed. For more particulars, send for catalogue for 1886.

P. L. VIALLON,
11tfd **Bayou Goula, Iberville Parish, La.**

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—Very little good comb honey on the market. A few lots of new have come forward and sold at 15@16c per lb. Extracted unchanged. *Beeswax*, 25c. R. A. BURNETT,
June 22, 1886. 161 So. Water St., Chicago, Ill.

CINCINNATI.—*Honey.*—Demand for extracted honey has been very slow of late, but seems to be improving gradually for manufacturing purposes. There is much honey in the hands of commission merchants, and prices are very low in consequence thereof; 3½@7c per lb. is the range of prices on arrival. Prices of comb honey are nominal.

Beeswax.—Arrivals are good, and demand is fair. We pay 18@22c per lb. for fair to choice yellow.

CHAS. F. MUTH & SON,
S. E. Cor. Freeman and Central Avenues,
June 23, 1886. Cincinnati, Ohio.

ST. LOUIS.—*Honey.*—Receipts of new honey are becoming quite liberal, and the market somewhat depressed. Choice comb, 12½@14. Extracted in cans, choice, 8c; extracted in bbls., 5c for good.
June 23, 1886. W. T. ANDERSON & CO.,
104 N. 3d St., St. Louis, Mo.

CLEVELAND.—*Honey.*—The market continues very quiet; some new white clover has been received, and best 1-lb. sections are selling at 14c; old 1-lb., 13c; old 2-lbs., 10@11. Glassed sections are unsalable. Ext., 6@7c. *Beeswax*, 22c. A. C. KENDEL,
June 21, 1886. 115 Ontario St., Cleveland, Ohio.

KANSAS CITY.—*Honey.*—The honey market is bare of comb honey. The demand is very good, at fair prices. We have reports of a good yield everywhere. 1-lb. comb, 14@16c; 2-lb. comb, 12@13 for white clover. Dark, 1-lb., 10@12; 2-lb., dark, 9. Extracted, choice white clover and sage, 5@6 cents; dark, 3@3½, and no sale. *Beeswax*, 20@22. New white clover, in one and two pounds, begins to come in. CLEMONS, CLOON & CO.,
June 21, 1886. Cor. 4th & Walnut St's,
Kansas City, Mo.

BOSTON.—*Honey.*—No change in the price of honey. Sales slow. BLAKE & RIPLEY,
June 19, 1886. 57 Chatham St., Boston, Mass.

DETROIT.—*Honey.*—There is a little new comb honey in the market, and the best white is selling at 13c. The demand, however, is limited. *Beeswax*, prime at 25c. M. H. HUNT,
June 21, 1886. Bell Branch, Mich.

FOR SALE.—1000 lbs. of new white-clover honey, 7c per lb. Ripe, and A No. 1 in quality.
J. B. MURRAY, Ada, Ohio.

FOR SALE.—New clover honey in kegs, at 8c per lb., kegs included; also in comb, stored in 1-lb. sections, a fine article, 16c per lb., put up in small cases.
O. H. TOWNSEND, Alamo, Kal. Co., Mich.

FOR SALE.—2000 lbs. white-clover honey in new 75-lb. tin cans. Delivered on board cars here. $5.00 per can, can included. Honey of this year's crop. Satisfaction guaranteed. N. MURRAY,
Ada, Hardin Co., Ohio.

HARD-TIME PRICES IN JULY.

Two-frame nuclei of Italian bees, with $1.00 queen, $2.00. If a larger nucleus is wanted, add 50 cts. for each additional frame. Full colony, in A. I. Root's Simplicity hive, $4.50. Pure Poland-China pigs for sale. My pigs are from prize-winning stock, and are second to none. No fancy prices asked. I will guarantee safe arrival and entire satisfaction on both bees and pigs. Address N. A. KNAPP,
13d Rochester, Lorain Co., Ohio.

WANTED.—Reliable local and traveling salesmen to sell Lubricating Oils. E. F. DIETERICHS, Cleveland, O. Inclose stamp for reply, and mention GLEANINGS.

IF you want fine honey-gatherers, try J. P. Moore's strain of Italians. See "ad."

CARNIOLAN ✻ QUEENS.
Carniolans are the Gentlest Bees Known,
AND EQUAL TO ANY OTHER RACE FOR WORK.
THE QUEENS ARE THE MOST PROLIFIC.
I offer daughters, of Imported Benton Carniolan queen, raised in my apiary of 40 colonies of pure Carniolan bees, during the remainder of this season, $1 00 each; six, $5.00.
DR. S. W. MORRISON,
Oxford, Chester Co., Pa.

For Sale. COLONIES, NUCLEI, and QUEENS, AT LOWEST PRICES.
11-16db GEO. D. RAUDENBUSH, READING, PA.

Red-Clover Italians.
For the past month, Moore's Italians have been roaring away on a large field of red clover. Reduced prices: Warranted queens, each, 80 cts.; per half doz., $4.50. Safe arrival and satisfaction guaranteed. See ad. in June 1st number. Circular, giving full particulars, free. J. P. MOORE,
13d Morgan, Pendleton Co., Ky.

NOW READY, ITALIAN QUEENS.
1 queen, $1.00; 2, $1.80; 3, $2.50; 5, $3.75. Bees by the pound, nucleus, and colony. 13-15db
L. T. HOPKINS, Conway, Franklin Co., Mass.

I WILL ship full colonies of Italian bees during July, August, and Sept., in Simplicity hives, with a wire-cloth cover and bottom, combs straight, bees in good condition, for $4.25. Hybrids in same hives and in same condition, and No. 1 honey-gatherers, also gather honey from red clover, $4.00. Reason for selling so cheap is, I have too much work to tend to so large a lot of bees. I guarantee safe arrival by express. H. M. MOYER,
13d Hill Church, Berks Co., Pa.

QUEENS. I have 50 dollar queens laying now; can ship by return mail sure.
13d L. HEINE, Bellmore, Queens Co., N. Y.

LOOK HERE, BEE-KEEPERS.
COMB FOUNDATION. Wax worked into Vandervort fdn. on shares, or by the pound, at 12½ and 15 cts. per lb. Brood fdn., 43 cts. per lb.; surplus, 50 cts. per lb. Also strawberry-plants, the best of varieties, at $1.00 per 100. Orders filled promptly. C. H. McFADDIN,
13d *Box 35.* Clarksburg, Moniteau Co., Mo.

UNTESTED ITALIAN QUEENS, reared under swarming impulse, $1.00 each; 3 for $2.50; 6 for $4.50. Tested, $1.50 each. Safe arrival guaranteed. F. S. McCLELLAND,
13d Box 379, New Brighton, Beaver Co., Pa.

KENTUCKY QUEENS. Italians, Holy-Land, and Albinos. Tested, $2.00; untested, $1.00 each. Bees, 75c per pound after 15th July. PELHAM & WILLIAMS,
13-16db Maysville, Ky.

A. J. KING'S New Circular of CARNIOLAN, SYRIAN, and ITALIAN QUEENS, etc., will be *SENT FREE* on application. Address
13tfdb A. J. KING, 51 Barclay St., New York.

FLORIDA PALMETTO FANS,
By mail, postpaid, 75 cts. Send money by registered mail. W. H. STEACY, BOX 20, THONOTOSASSA, FLA. 13-14d

ITALIAN BEES IN IOWA.
60c to 85c per lb. Queens, 30c to $1.75, according to kind and time. Also bee-supplies and honey. Order from free circular. "How to Raise Comb Honey," an illustrated pamphlet, just out, price 5 cents. Address OLIVER FOSTER,
13tfdb Mt. Vernon, Linn Co., Iowa.

CHEAP!
Full colonies in Simplicity hives, and honey enough to winter, for only $4.50. *Will ship last of July.* DAN WHITE,
11tfdb NEW LONDON, HURON CO., OHIO.

GLEANINGS IN BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A.Whiting

Vol. XIV. JULY 1, 1886. No. 13.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18c per year extra. To all countries NOT of the U. P. U., 42c per year extra.

NOTES FROM THE BANNER APIARY.

No. 79.

CLEANING HONEY-BOARDS.

As I have mentioned before, the only objection that I have to the wooden queen-excluding honey-boards is, that the bees fill the holes with propolis and wax. They are more inclined to do this when but little honey is being brought in. I have just been cleaning about 50 of them. I took a piece of hard wood, two inches wide, ¼ inch thick, and seven or eight inches long. One end of this was carefully planed down upon the sides until it was exactly 5-32 thick. This thin end was placed over an opening that was filled up, and the upper end given a light rap with a hammer, which clears the hole pretty effectually. To prevent the stick going through too far, a nail is driven through it half an inch from the lower end. The honey-board is supported by placing it upon two Heddon cases set upon the floor, perhaps four or five inches apart; but this operation did not free the holes so completely as I could wish, as there seemed to be a little wax adhering to the sides. To remove this, a ten-penny nail was fastened into a bit-stock, thrust into each opening, and turned slightly until the corners scraped the sides of the hole as it was passed from one end to the other of the slot. This cleaned them out completely. I have been making some honey-boards like Tinker's; that is, they are similar to the Heddon slat honey-board, except that the edges of the slats are grooved with a fine saw, and strips of perforated zinc slipped in between the slats. They cost a trifle less than an all-zinc board; have the desirable rigidity so necessary for keeping the bee-spaces exact, and I no not *think* the bees will fill the holes any more than they would in an all-zinc board.

SWARMING-OUT MANIA.

I have never had bees "act so" about staying in their hives after being hived, as this season. I do not know to what to attribute it, unless it be the light flow of honey that characterized the fore part of the season. Don't say it was because they didn't like the new Heddon hive, as all were not hived in that; in fact, the two swarms that gave the most trouble (one coming out four and the other five times) were hived in the old style of Heddon hive. I thought it might be caused by contracted brood-chambers, until two swarms re-swarmed that did not even *fill* the brood-chamber—swarms that had no business to have swarmed in the first place, as they were not strong enough, and swarmed, I suppose, simply because their neighbors did. As the honey-flow improved, so did the behavior of the bees; still, an occasional swarm "acts up." After we had lost three swarms by their "going west" (every one went *west*), preconceived notions were tossed to the winds, and we fell to

CLIPPING THE QUEENS' WINGS.

The first swarm came out and left early in the season—so early that we didn't expect it. It kindly came up past the house, though, to say "good-by," but too high above us to "shake hands." The second swarm left in spite of the combined efforts of two whole families. Brother and I followed it about a mile, and our wives and the twins followed us, or *tried* to follow us, with pails of water; and when we returned, tired, hot, disgusted, chagrined, and *unsuccessful*, it was decided, by *vote*, that every queen should have her wing clipped. These $5.00 arguments in favor of clipping were becoming too numerous. But we finally reconsidered, and decided to wait until the bees swarmed, and *then* find the queen, and clip their wings, which we have done. So expert have we become in catching queens that we catch most of them as they leave the hive. A queen seldom takes wing the moment she reaches the entrance of the hive, but usually drops on the ground about a foot in front of the hive, remains there from one to five seconds, then slowly rises and flies. We have sometimes caught them in our hands after they had risen to fly. If the queen is not found as the swarm is issuing, the swarm is shaken into a basket, the edge of the basket placed at the entrance of the hive, when the bees will begin to crawl in and to *spread out* over the inside of the basket. As the basket is lined with white cloth there is not much difficulty in finding the queen. One of us is in the apiary from between seven and eight in the morning until between four and five in the afternoon, yet one colony cast a swarm when we didn't know it, and we didn't discover it until it cast a second swarm, when the "brand-new" look of the queen aroused our suspicions, and investigations followed. I have never had more than 75 colonies, spring count; and with an apiary of that size, I should prefer not to have the queens clipped, if the bees would stay hived, and they usually have until this season; but in a large apiary it has always seemed to me as though several swarms issuing at once would give much trouble unless the queens were clipped. The best remedy that I can suggest would be to have several small tents scattered about the yard; and if a swarm is *seen* at the *outset*, set a tent over it until the swarm in the air is cared for. We have used our tent in that way several times this season, and it works like a charm.

REVERSAL PREVENTING SWARMING.

None of our colonies that we have been practicing reversing upon have yet swarmed; but as the number is limited, and they may yet swarm, I do not consider it a fair test, and I mention it only that others who are trying reversing may also notice in regard to the matter. At present I do not care to prevent the issuing of *first* swarms; but many bee-keepers would be glad to know that inverting a hive once a week would prevent its occupants from swarming.

W. Z. HUTCHINSON.

Rogersville, Mich., June, 1886.

You will notice, friend H., that friend Alley, on another page, strikes on the point you mention; viz., that reversing the brood-chamber will have a tendency to prevent swarming. This is quite an important matter, and we shall be glad to have reports from those who have tested it to see. I believe it is true, that many colonies are induced to swarm because they hear their neighbors swarming; and this sometimes gets to be quite a serious trouble, especially where the owner of the apiary wishes to secure comb honey. I believe most of our veterans own up defeated at such times. Friend Hasty, you will remember, during one season could discover no other way to cure the swarming than to bury the truants for two or three days in the ground.

EMPTY FRAMES, EMPTY COMBS, OR FOUNDATION?

FRIEND HUTCHINSON TELLS US WHICH, UNDER CERTAIN CIRCUMSTANCES, AND GIVES THE WHYS AND WHEREFORES.

IN the *Canadian Bee Journal* for May 26, p. 169, occurs the following query:

> In the honey season, if I had three first swarms come off within a few minutes of each other, and I were to put one in an empty hive, another in a hive filled with foundation, and the third filled with worker-combs, each swarm weighing 6 lbs., how much extracted honey would each yield in the first ten days? W. M.

We have not space for the answers to this query; but friend W. Z. Hutchinson writes so valuable an article in regard to the matter, on page 249 of the *C. B. J.* for June 23, that we give place to it below:

I was much interested in query No. 75, asking which swarm would store the most extracted honey the first ten days after hiving, one hived in an empty hive, one given foundation, or one given empty combs.

I wish that the query had been put in a little different form. Modern apiculture has divided a beehive into two radically different apartments—brood-nest and surplus-department. Of course, the brood-nest *can* be made so large as to allow room for the honey as well as the brood; but most apiarists now prefer to have the brood by itself, and the honey by itself. In view of this I should like to put the query something like this: If the *brood-chamber* of one hive is furnished with foundation, another with empty combs, and a third with empty frames, swarms exactly alike are hived at the same time in these hives, while the *surplus* apartments are furnished with foundation, or empty combs, which surplus-apartment will contain the most honey (either comb or extracted) at the expiration of ten days, or at the end of the season, and which brood-nest will contain the most brood? The bees are to be given access to the surplus at the time of hiving, and the brood-chamber must be of such a size that the bees must, of necessity, also occupy the surplus-apartment. Unless empty combs are used, a queen-excluding honey-board will be needed.

According to experiments which I have made during the past two years, the swarm that builds its combs in the brood-nest will store the most honey in the surplus-apartment, and have the most brood in the brood-nest; next will come the swarm given foundation, while the swarm with empty combs will put the least honey in the super and rear the least brood. The experiments that I have made consisted of hiving one swarm on empty combs, the next on empty frames, and the third on foundation, continuing in this way until about 40 swarms had been hived each year.

When combs are given, the bees proceed at once to fill them with honey, which in good honey weather they will often do in two days. In this way they get the start of the queens, and they *keep* it. I can not tell why it is; perhaps the bees feel that their job is finished; but after filling a set of combs in the brood-nest, bees are very reluctant to commence in the boxes. Where they store their first honey after being hived, there they seem willing to continue to store it; and when foundation is given in the brood-nest, and *combs* in the surplus-apartment, the first honey goes into the super, as no honey can be stored in the brood-nest until the foundation is drawn; but in two days, foundation becomes *comb*, and then the bees will store considerable honey in the brood-nest; but they will continue to work in the supers, as they have made a *start* there. When hived upon empty frames, and given combs or foundation in the super, all the honey must be stored in the super until combs can be built in the brood-nest; and just as soon as a few cells are started in the brood-nest, the queen is ready to fill them with eggs; and as soon as the eggs are laid in a comb that is being built, the storing of honey ceases in *that* comb, as no honey is stored below where brood is started. The queen can keep pace with the building of natural comb, but *not* with the drawing-out of foundation When a swarm is hived upon empty frames, and given access at once to a super, furnished with foundation or combs, the result is that all the honey goes into the super, while the brood-nest is filled with sheets of solid brood. According to the experiments that I made, if the foundation had been given to me it would have been used at a loss when put into the brood-chamber and swarms hived upon it.

At the Detroit convention, Mr. H. R. Boardman said he had tried hiving swarms upon empty frames, and was pleased with the result. Mr. J. B. Hall had also tried it, but too much drone comb was the result. This I attribute to his large brood-chambers.

Mr. Doolittle's article, "Production of Wax," is right to the point. Because bees in confinement require twenty pounds of honey to produce one pound of wax, it does not follow that a new swarm can not build the combs in the brood-nest to better advantage to their owner than to draw out foundation.

Mr. Doolittle speaks of dispensing with foundation because it is expensive. "A penny saved is a penny earned," etc. That is not the question. Bee-keepers do not look upon foundation as a *luxury*—something that *could* be dispensed with—but rather a *necessity*. It does not pay to "retrench as much as possible" in the use of *some* things. The question is, "Does it pay to use foundation in the brood-nest when hiving swarms?" If it *does*, where is the economy of allowing bees to build their own combs? If it *pays*, the more we use the larger the profit; and if it *doesn't*, nobody will be fool enough to use it simply for the fun of the thing.

Rogersville, Mich. W. Z. HUTCHINSON.

After reading the above, a great many things not heretofore plain became all at once easy to understand. For instance: Just before we commenced manufacturing extractors, a neighbor brought me a good-sized swarm of black bees. I had been buying all the bees in the country around, and at prices that enabled our country friends to take a horse and buggy and bring me every swarm as fast as it came off. Well, the swarm mentioned was brought about the middle of July, the owner expecting I would give at least $5.00 for it. I told him the basswood yield was so near over I could not possibly give over $2.00; and some of my old bee-friends thought the bees were not worth any thing, because they could not possibly gather honey enough to winter. I had my own ideas in regard to it, however. I gave the bees a full set of combs, and they went right to work, and in two days their combs were almost like lead, the honey sparkling from corner to corner — none of it capped over, of course. To my surprise, not an egg was to be seen, and I began wondering if they were not queenless. I gave them more room, however, but no eggs were found for something like a week. The honey came so fast that the queen didn't have a chance to commence, or perhaps the bees were so eager to improve the time that they couldn't stop to prepare cells for her use. Now, then, friends, had the empty combs I gave the bees been shallow, say four or five inches deep, and had room been provided below for comb-building, the honey would all have gone into these shallow combs. New combs would meanwhile have been built under them, which the queen would have occupied with brood. Thus we see how plain it is that more *honey* will be stored in the sections where the new swarm is given empty frames than if they had empty combs, or even frames filled with foundation. We should be very glad of more experiments on this subject while the season permits.

Of course, this condition of affairs refers to comb honey. Where one is working for extracted honey, by all means give them empty combs; and if you can not do that, give them empty frames filled with foundation. New swarms will give enormous quantities of extracted honey, if provided with empty combs when first hived; that is, if I am correct in the matter; and I should be very glad indeed to have friend Hutchinson's opinion in regard to this latter — that is, if he has ever tried working new swarms for extracted honey.

INDUCING BEES TO COMMENCE WORK IN THE SECTIONS, ETC.

GLEANINGS AS AN ADVERTISING MEDIUM.

THAT GLEANINGS is a first-class medium for advertising, has been fully proved to myself, while at the same time it has added largely to my labors in the way of answering letters. A few weeks ago, it may be remembered, I gave a method of my own for enticing or forcing bees into sections, by shaving combs in the brood-chamber to ⅞ inch thick, spacing them just a bee-space apart, and putting on sections at the first approach of the honey season. Well, for the last three weeks letters have been coming to me from various sections in regard to the matter; and, strange to say, every one from persons who had tested, in a small way, the method I described; but it is not at all strange that every one had found the method did work just as I had stated it would. One writer is very enthusiastic over it, saying that, with him, it does a thing that has bothered him for years, and is the only reasonable and easy way of getting bees into sections that he has ever tried. And with myself, I desire to say that it works every time; there are no failures, and there can be none, as it is in direct accordance with the natural habits of the bees, and is only doing with frames just what they do in box hives and hollow trees. It is useless to expect that a frame hive alone, no matter whose patent it may be, will give us good results, without *some* labor on our part. The point is, to do the required labor in the easiest, cheapest, and most natural way, because this will be found the best way. I trust that every one who has written to me will report the results in GLEANINGS and the other journals, so that, if the plan is of any value, the fraternity may all know it, and have the benefit of it. As it can be tested at any time, and with any hive, it will cause no trouble to do so, and the results, I know, will be surprising to any who are at all skeptical.

INTRODUCING QUEENS.

It seems a little strange to me that so many find trouble in introducing queens. I admit, that I once found great trouble myself; but the most of it was caused by over-anxiety. The so-called "Simmins method" is so nearly absolutely safe, however, that the veriest novice would not lose 2 per cent by using it, while the expert will meet with comparatively no loss at all; and if he should, it would be one of those cases where the loss was unavoidable, and would have happened under any circumstances. I use, however, a modification of the "Simmins method," and deem it fully as simple and handy. I have introduced many queens by my way, and never lost one yet. Some of these queens were virgins, but almost all were fertilized. The plan or method I use altogether now is, to remove the old queen, just after the noon hour on a bright day, when the bees are flying briskly. At dusk of the same day, and after the flying for the day has ceased, I give the colony a little smoke, wait three or four minutes for the bees to fill themselves with nectar, and then let the new queen run directly in at the entrance. I do not open the hive, or trouble it at all for four or five days after the introduction. I have no faith or belief in the "scent" theory; but if any do, they might keep the new queen caged on top the frames for a day or two; but to introduce safely, the new queen must be allowed to enter the hive on the same day the old one is removed, and the hive must not be opened for three or four days. I have not found that it made any difference whether honey was being gathered freely or not; but as possibly this may be owing to the fact that I always feed a little when no honey is being gathered from the fields, it may be advisable, if the attempt to introduce is made during a honey-dearth, to feed enough to keep a colony on its good behavior. I should never attempt to introduce a queen on the day she came from a distance, in any case, but should allow her to remain for a day or two on the frames of some hive, in order that she might get rested from the effects of the journey, and her ovaries be stimulated to their accustomed vigor; and this might as well be done on the frames of the hive she was to be given, as on any other. I have formed a theory in regard to this matter of introducing, but will not give it here, as space just now should be devoted to fact, and not given to theories.

Foxboro, Mass., June 15, 1886. J. E. POND, JR.

Friend P., your suggestion in regard to getting bees in sections is certainly an important matter. I suppose that this operaation of shaving combs to $\frac{7}{8}$ inch uncaps the greater part of the unsealed honey along near the top-bar. Some years ago a correspondent stated that uncapping the sealed honey would cause the bees to move a part into the sections. Moving the combs up near together, probably still further tends to secure the result. We have practiced your method of introducing queens, quite extensively; and there are so few failures, I think we can often afford to lose a queen once in a while, rather than to take the time required by other methods.

MAILING QUEEN-BEES WITHOUT ATTENDANT WORKERS.

A NEW RULING OF THE U. S. POSTOFFICE DEPARTMENT IN THE MATTER.

SINCE what we wrote on page 537, the following has come to hand from Prof. Cook:

Dear Mr. Root:—I have conferred with our President, ex-Congressman Willits, and he suggests that we send a great number of petitions to Hon. John Jameson, General Superintendent P. O. Department, stating the fact that queens can not be shipped without attendants, and urging that the ruling be changed. I will ask Mr. Newman to act at once through the Union. You had better also push the matter, through your subscribers. Mr. Willits will write to Jameson personally; as he knows him well, his appeal will have great weight.

The Canadian matter is a matter of treaty, and we can not easily cure the evil, if we can at all. I can not go to Washington before winter, when, if it seems wise and best, I can go. A. J. COOK.

Agricultural College, Mich., June 23, 1886.

Now, friends, you see what we have to do. It looks as if it were a move somewhat similar to the one relative to increasing the postage on seeds and merchandise. It hardly seems possible that the postoffice department should for a moment think of trifling with a matter concerning our great and growing industry; and to make a ruling that live queen-bees could pass in the mails without the half-dozen attendant workers, is surely a blunder, and not intentional. We hope the proper officials will make haste to right the great wrong they have come so near doing. Meanwhile, let us make ourselves heard. Will every bee-keeper follow friend Cook's advice, and send in his petition to his Congressman?

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.

THE GOLDEN BEE-HIVE.

I NOTICE a caution from *Agriculture Wheel*, No. 383, Independence County, Ark., notifying the Wheelers to be aware of the agents of the Golden bee-hive. They say it is a humbug and a fraud, and gave reference to you for their authority. Now, as their agents are in this section, selling farm-rights at ten dollars each, I wish you to inform me of the facts, and in what particular. Is it because they sell a patent-right and have none, or is it because it falls short of its recommendation and representations? D. D. BREWER.

Springfield, Conway Co., Ark., June 14, 1886.

Friend B., I am not able to say whether there is a valid patent on the Golden beehive or not; all I can say is this: That the men who have for years been traveling about selling rights for the Golden bee-hive have been, every little while, published on account of their swindling operations; and if the parties you speak of are selling farm-rights for ten dollars each, I should say they belong to the same class. They and the people who buy of them are behind the times. Successful modern bee culture requires no farm right or right of any kind; and the money that is obtained is, almost invariably, obtained by making false pretenses. Investigation usually shows that the features claimed by the men selling rights are common property, and have been for years.

F. E. FROSS AND HIS STUMP-BURNING PENETRATIVE.

We clip the following from the *Farm and Fireside:*

The U. S. postal authorities recently arrested the propagandists of the wonderful "Acme Penetrative," for burning stumps, whose headquarters of late have been at New Carlisle, Ohio, the charge being that of using the mails for fraudulent purposes.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER VII.

THE BUSY SEASON.

AT length the eighth day from the one on which the first swarm issued arrived; but it was a dark, rainy day, and of course no swarm was expected that day. In the evening the children called their father and mother out to listen to the queens piping. When Mr. Meek had listened for a few moments he said, "You may expect a swarm to-morrow, if it is a fair day," and he was not mistaken. This swarm surprised the children by clustering on the very spot on which the first swarm had clustered. Their father explained that such was often the case; that, in large apiaries, frequently swarm after swarm would cluster on the same limb; that probably there was a scent left that attracted the next swarm.

The children were not so wild with excitement as on the former occasion. They put on their bee-hats and hived it themselves; their father looked on and gave some directions. The bees were marching into the new hive nicely, and the children were watching them intently, hoping to see the queen, when Tommy suddenly began to dance on one foot, as though greatly pleased. He did not clap his hands, crying, "Good, good!" but grasped his pants behind the right knee with both hands, and cried, "Crackee! crackee!" His father asked what was wrong, when he cried out, as though in great pain, "I am stung, I am stung! oh dear! oh dear!"

Jane's arm was soon around his neck, and comforting words were whispered in his ear. She said, "Poor little Tommy! how I pity you! but you know we are bee-keepers, and will both have to take some stings. We must just bear them as well as we can."

It seemed a bee had crawled up his pants on the inside, and inserted its sting under his knee, in a tender spot. His knee swelled considerably, making him quite lame; but his lameness lasted only that afternoon. His father told him how to prevent such an accident occurring again. If he had on boots he could tuck his pants inside; or if he wore shoes he could tuck them inside his socks, or else tie a string around the lower ends of the legs.

The bees in the nail-keg exhibited no disposition to cast a third swarm. The question with the children now was, what to do with the nail-keg hive. The old black weather-beaten nail-keg looked so badly alongside of the two nicely painted hives that they wished to get it out of the way. They read over what the book and papers said about transferring, and often talked it over with papa, but it was to all a thing they dreaded to attempt. Here a most fortunate thing occurred. Rev. Mr. Robb, an old friend and classmate of their father, came to pay him a visit. Mr. Robb had kept bees for years, and was expert at transferring, and readily agreed to undertake the job. As they desired increase, he said they could divide the colony and feed both up so they would winter. He first ordered from the supply-dealer a dollar queen and a dozen cheap feeders. A couple of empty nail-kegs were then procured; and just after dinner Mr. Robb removed the old hive, setting another nail-keg in its place, to retain the bees returning from the fields. After smoking the old hive he inverted it, and, placing the other empty nail-keg on top, closed all crevices by winding a sheet around where the two came together. He next drummed for some time on the lower keg with a stick. He then removed the upper keg, where nearly all the bees were found clustered in the top of it. He next cut away the hoops from the old hive and took it to pieces, taking out comb after comb which he fitted as well as he could into empty frames from the new hives, fastening them in with slender willow rods, tied above and below the frames. These frames of comb he hung in two empty hives. He was careful to fasten in all the brood he found, and also all the comb, except a few fragments. He then placed one of these hives upon the old stand, and the other upon a new one. The bees that had been driven out of the hive into a nail-keg, and kept covered up, were now brought, and a part emptied in front of the hive placed on the old stand; but the greater part were emptied in front of the hive on the new stand, and made to enter it as though they had just swarmed.

Mr. Robb explained to the children, that many bees would probably return to the old stand, and therefore he gave more to the one on the new stand. After contracting the entrances to exclude robbers, they were left until the new queen arrived. Mr. Robb then opened both hives and looked closely over the combs. In the one on the old stand he found queen-cells started, while he saw none in the one on the new stand, but found the queen upon one of its combs. He placed the new queen in the queenless hive, leaving her caged for thirty-six hours, and then, cutting out all queen-cells, released her, and she was accepted by the bees. Before he finished his visit he assured the children that his work had been a perfect success, and that they had a start of two good colonies; but that, whenever there was a dearth of honey, they must feed them sugar syrup, and he showed how the new feeders could be set inside the hive, alongside of the combs, which did not more than half fill the brood-chamber.

Frequent examinations convinced Mr. Meek that the first swarm would fill the case of sections placed upon it, and that the second swarm would about fill its brood-chamber, and that the two colonies made by Mr. Robb would need considerable feeding to prepare them for winter. After a time Mr. Meek told the children to prepare a second case of sections as they had the first. The case on the first swarm was raised up, and this empty case put in its place, and it was then placed on the top of the empty one. As the sections had not closed tops, the bees could work up through the empty one. To place this case on the hive required the entire family. Mr. Meek raised the whole case, and held it while Tommy slipped in the empty one. Jane, smoker in hand, kept the bees in subjection, while mamma gazed in admiration at the daring achievement. Here arose a difficulty. The cap was too small to cover two cases and reach its resting-place. Mr. Meek took a fence-board, and cut and nailed up a rim that filled up the vacancy nicely. As soon as the outside sections were sealed, the upper tier of sections was removed, but the second was left until the frost came.

When this new honey was taken and placed in the store-room, the whole family praised it highly. And when the honey was cut from a section into a dish, and placed upon their supper-table, they pronounced it delicious. Jane said, "It is better than any candy I ever tasted;" and Tommy added, "I tell you, our bees make the boss honey; the comb melts in my mouth. You remember, pa, the honey Mr. Baker sent us, how tough the comb was; you could hardly cut it, and it did for chewing-gum."

His father said, "Comb is never good to eat after bees have hatched in it. Each young bee opens a web around the inside of the cell. This makes the comb tough. As each bee hatched in the cell adds another web, old combs become very tough. This comb had no bees hatched in it, while Mr. Baker's had; hence the difference."

When the other case of sections was removed, after the first frost, it was found that there was honey in every section. Six in the middle were about finished, the rest only partly sealed, but could all be used in the family. In fact, it had already been decided that no honey should be sold that year. Their entire honey-crop was fifty-three pounds.

One evening, after supper, Jane produced the account-book of the firm, which showed as follows:

ARTICLES PURCHASED BY THE FIRM OF JANE MEEK & BROTHER.

Number of packages of sugar for feeding	$2.75
Five Langstroth hives	8.00
Five hundred sections	3 50
Freight on sections	.30
A box containing one smoker	.50
Fifty tin separators	1.50
Eight pounds of thin comb foundation	4.00
Freight on this box	.25
One dozen feeders	.60
One queen	1.00
	$22.40

Of this amount, $2.30 was from the children's pocket-money. The rest, $20.10, was money loaned the firm by Mr. Meek.

Of course, more supplies had been purchased than were needed, because these had to be shipped, and could not well be shipped in smaller lots than they had ordered, and they knew that any supplies left over would do for next season. The children made out the following account, to be placed opposite the expenses:

Supplies and utensils on hand	$9 60
Four colonies at $5.00 a colony	20.00
53 pounds of honey, at 15 cts. a lb	7.95
	$37.55

A comparison shows that, although the firm was in debt, there was a gain during the year.

Tommy did not like to be in debt, and said to his father, "You gave me a book about Benjamin Franklin, and told me to follow its teachings. You showed me what he said about debt, and said when I went into business to remember his advice, if I would be successful—to have as my motto, 'Owe no man any thing.' Now, our firm is deeply in debt. Are we doing right?"

His father answered, "If you had borrowed this money from a stranger, I would not approve of it; but as it is, I think it all right. You remember I gave my consent to you and Jane keeping bees for certain reasons. You are being educated. The money is invested in educating you to do business; to understand bees, and also to keep bees; and if the firm fails to pay me, I will not consider the money lost. This debt to me is not like another debt; I merely ask you to pay if able; and if disaster overtakes you, I wi'l forgive you the debt. An old farmer advised his son never to go in debt at all; 'but,' said he, 'if you do go in debt, let it be for manure.' I would say to bee-keepers, never go in debt at all; but if you do go in debt, let it be for improvements which will increase your yield of honey.

To be continued Aug. 1.

THE DOOLITTLE SURPLUS ARRANGEMENT.

CAN HONEY BE SENT TO MARKET IN THE SAME CASE IT COMES FROM THE HIVE?

IN your remarks on the Doolittle surplus arrangement for comb honey, in GLEANINGS, June 1st, you say: "Such an arrangement works nicely on hives, but is not practicable to use for shipping honey to market. For home use, however, it seems to answer every purpose." If I understand your last sentence, you wish to imply that the case is not practicable for bee-keepers raising honey for market, but only for those who raise honey for home use, etc. I should like to have you tell us if you ever sent comb honey to market in the cases in which it is built, in a marketable condition? Is the combined shipping and honey crate a marketable honey-case? For my part I don't think it is, and I don't think it is ever used for that purpose. The fact is, I don't know of any bee-keeper who ever sent his comb honey in the case it was built in. This arrangement that you call the Viallon plan, etc., instead of the Doolittle surplus arrangement, etc., has been used for nearly ten years by Doolittle, and it is from a sample arrangement of wide frames he sent you in 1876 that you came out and advertised the wide frames to hold eight sections, and your three-box case you say is similar, and advertised by you several years. I claimed no novelty in the arrangement; but as I used it with better results than any other case, and as it had not been made public, to my knowledge, before I saw friend Doolittle's article in the *A. B. J.*, I wrote to him and asked him permission to manufacture it and call it his arrangement, which is nothing but right, as he was the first one to use such an arrangement. I will take this opportunity to ask friend Doolittle to give us his views on the subject, in GLEANINGS. P. L. VIALLON.

Bayou Goula, La., June 12, 1886.

Excuse me, friend V., if I did not say just what I meant to say in my foot-note to your communication in our issue of June 1st. The combined shipping and honey crate illustrated in our price list has been used quite extensively about here, and I think generally in different localities, for taking honey to neighboring stores and groceries. It can be lifted directly from the hive; and after the bees have been expelled it is ready to be handed over to the grocer without removing a section, unless you think best to take out one or two, so he won't have any trouble in getting them started. As to whether it has been used for shipping on the cars or not, I do not know. I am inclined to think it has, however, because one or two complaints have been made that there is no ready method of closing the openings in the bottom, where the bees get in, during shipment. It is true, I first got the idea of tin separators from friend Doolittle; but he told me at once that they were not original with him—that he first saw them at his neighbor Betsinger's. We afterward found out that they were used and patented by another York-State man whose name I do not now remember, even before Mr. Betsinger used them. For the sake of economy, and to enable us to handle them as we handle a brood-frame, I suggested the wide frame, now in general use almost the world over. I certainly did not intend to omit giving credit anywhere; but most of these things have come up so gradually, and so many have contributed a little here and a little there, that it seems a pretty hard matter to call any of these things after the name of the inventor, unless, indeed, we do as our English friends do, and attach a string of names to something in common use that has been given us by quite a number of different people. As we do not produce comb honey, we are hardly prepared to decide which arrangement is best, all things considered. We manufacture whatever the brethren call for.

SOME SUGGESTIONS IN REGARD TO RETURNING SWARMS.

MY WAY.

IT is often necessary to return swarms of bees to the hive from which they have issued, when but little increase in the *number* of *colonies* is desired. My plan for doing this is to remove the queen or queens from the swarm, and thus compel the bees to go back themselves. Get the swarm into a shallow swarming-box, and carry them about 200 feet from the place where they clustered, and from the apiary. Gently shake the bees on to a sheet or wide board, and place the box two or three feet from them, so that the queen can be more easily found. She will often fly when the bees are shaken out, and will alight into or at the entrance to the box. If the queen should get into the box, and can not easily be caught, shake the bees out again, or carry the box with what bees are in it to a new spot, leaving those that are not in the box, thus having fewer bees to sort over.

As soon as the queens are taken away the bees will begin to get restless, crawling out of the box, and flying, and will soon return to the hive or hives from which they issued. If, after removing one queen, the bees should stay contented, they should be shaken out again, to find the other queens. If you do not care to save the queen, kill her by cutting with a knife-blade. This can be done without picking her up, which is quite difficult. I sometimes catch the queen in my hand when she is rising to fly. I like this plan of returning swarms better than cutting out queen-cells.

Removing and returning crates and supers to hives, mashing bees, looking over the combs for queen-cells, missing some that ought to be removed, taking the chances of leaving but one cell to hatch, and seeing the bees swarm after all, are more laborious and discouraging.

Should your choice imported queen swarm, and you do not see them issue, you will know it by the bees returning to their own hive.

A NEW INCUBATOR.

Would not some of the readers of GLEANINGS like to try the experiment of hatching chickens by the heat of a colony of bees? Now is the time to do it. Place a sheet of burlap on the frames, and a second story on the hive, then put loose chaff in the second story. Put in the eggs close enough to the bees to get the right temperature. Moisten and air the eggs occasionally. Should the bees swarm, return them. Will the eggs hatch? CHAS. A. WOOD, 20—23.

Tarrytown, N. Y.

I think, friend Wood, that the heat of a swarm of bees is not sufficient to hatch eggs. See what has been written in our back numbers in regard to the temperature of the brood-nest of a colony of bees. You will notice that it is not quite high enough for hatching eggs.

INTRODUCING VIRGIN QUEENS.

FRIEND LAKIN GIVES US SOME OF HIS EXPERIENCE IN REGARD TO THE MATTER.

SPEAKING of the lamp-nursery, the queens so hatched, and the methods of introducing such queens, you say: "It will be of no use to attempt introducing these queens by caging." Does this statement apply to all unfertile queens? Would there be, practically, any difference between a queen hatched in the nursery and one hatched in the natural manner? These are my reasons for the above interrogatories: May 29 one of my colonies cast a swarm—a second swarm, I had reason to believe; and after hiving the swarm, and satisfying myself that they were provided with a queen, I concluded I would remove the queen-cells from the old colony, to prevent a second or third swarm, intending to insert the choicest cells in some colonies I had unqueened. On examination I found seven young queens in the old colony, six of which were removed, caged, and introduced to as many queenless colonies. Having use for five queens myself, I gave friend Fisher the sixth. All were caged and successfully introduced to good strong colonies. One of my colonies I had unqueened the evening before the caged queen was placed in the hive. In this case the queen was placed in the colony, caged 24 hours. The remaining colonies were queenless from three to five days, as shown by the register. The cages were improvised—hurriedly and roughly made, yours not having arrived yet. The cages were placed over an abundance of uncapped honey, providing an abundance of stores for the queen. To-day the queens are all fertile, and apparently as prolific as any in the apiary. I have secured some of my choicest young queens by caging the cells, when within three or four days of hatching—unqueening where I wish to requeen, and placing the cage between the combs, being sure the cage is placed with the wire cloth over uncapped honey. Now, if queens can be so introduced; that is, by caging the cells in queenless colonies, there will be a wonderful saving in time over the method of giving unsealed brood and larvæ of the proper age for queen-rearing. Of course, cells can be given a queenless colony; but what is the percentage of losses by this method? With a caged cell they show evidence of a willingness to destroy the cell, but are unable to reach it. In six attempts at cell-caging, all have proven successful, and four queens so hatched are now laying queens; the fifth has the appearance and actions of a fertile queen; but when last examined, no positive evidence of her fertility was discernible. The sixth is too young to expect any thing from at this writing.

Now, Mr. Root, you know I am one of those little fellows; that is, I am in the A B C class, and the above may not be new or strange to you or your readers; but in view of your statement concerning the introduction of young queens by caging, I concluded I would write you concerning it.

Where can I find a description of friend Heddon's non-swarming method? S. W. LAKIN.

Eureka, Ill., June 12, 1886.

Friend L., this matter is by no means new. The whole thing has been gone over in our back journals. As a rule, virgin queens can not be introduced by caging, although at times there seem to be a good many exceptions to this rule. The most successful way of getting them into the colony is to let them loose among bees just as soon as they are hatched; and the success of the lamp-nursery depends upon this peculiar fact. Queens that come off with an after-swarm are in no way different from those hatched in the lamp-nursery; that is, providing they are introduced to the colony very soon after being hatched, as those in the lamp-nursery always should be. Your success is a little remarkable, although it is quite common to see bees accept of almost any thing you give when honey is coming in bountifully, as I suppose it was at the time of your experiments. Caging queen-cells has been discussed a good many times; but after a while the plan has been dropped. Friend Doolittle's plan, given in our last issue, may, however, bring it into general use. We have decided that as many, or more, cells are lost when giving the queenless colony a capped queen-cell than by giving them virgin queens newly hatched.—I should think you were having quite encouraging success, friend L., even if you are but a "little fellow" in bee-lore.—Heddon's plan of non-swarming is fully described in his new book, which we mail from this office on receipt of fifty cents.

FLORIDA AND ITS FLORA.

THE NATIVE BEES EXTREMELY LAZY.

SO much having been written in GLEANINGS about Florida, I thought I would try to enlighten some of the bee-keepers who contemplate coming to the northern part of the State. Anybody, however, who settles in this section will not find it nearly as productive of honey as almost any of the Northern States. The bees gather just enough honey to winter on (what little winter there is), and an extra populous colony may make a few pounds of surplus; but now for the reason.

The native bee is extremely lazy, working only a short time morning and night. The rest of the time is spent, like the Floridian, trying to keep cool, and no amount of smoking will drive them up in the combs and start them to work. Thinking that queens not indigenous to this climate would surely be an improvement, I had a number sent me from the North, but I found they very soon became believers in the maxim, "When in Rome, do as the Romans do."

Northern Florida would be an excellent place for queen-rearing if it were not for the dragon-flies (Devil's darning-needle of the North). They congregate like flocks of pigeons; and the poor bee, laden with honey, finds it a difficult task to evade so many of its enemies in its flight to the hive. If the queen took her wedding-trip in the heat of the day all this would be avoided, as they seem to gather in large numbers only at evening; but she generally takes wing when most of the bees are flying. If the bees gathered nectar in proportion to the yield of flowers, the amount of honey produced would certainly be large. In February, after the bees are over with wintering, they commence gathering honey from the honeysuckle, yellow jessamine, and, during the latter part of the month, from orange-blossoms; then continues one long list of honey-producing plants and trees, such as black gum, holly, persimmon, gallberry, palmetto, etc. From the two last mentioned they gather what surplus they make. All of the honey is remarkably white and thick. Many persons, who are competent judges, regard that made from orange-blossoms as superior to white clover.

There is a ready sale at all times for honey in Florida. It is now selling at 20 c. per lb.; and during the winter, when every thing is booming, the price ranges from 25 to 30 cents, and sometimes even more. C. MOORHOUSE.

Hibernia, Florida, June 9, 1886.

DISPOSING OF THE HOUSE-SLOPS.

FRIEND TERRY GIVES US SOME PRACTICAL IDEAS ON THE SUBJECT, TOGETHER WITH SOME FACTS FROM ACTUAL EXPERIENCE.

FRIEND ROOT:—There was a great deal of sickness in the family that lived on this farm for some time before I came here. Their physician once told me he felt ashamed of having to come here so much. I think about all of them are now dead. They may not have been a healthy family, but still I feel sure the cause of much of their ill health lay inside of the dooryard fence. My friends, when they heard I had bought the place, said, "Don't take your family there to live; it is an unhealthy locality." After looking around awhile I decided it *was* a bad place to live in, the shape it then was, but that it could be made a very healthy and pleasant home. This is about the shape we found things in: A wing of the house extended over the well, and was used as a kitchen and a place to make cheese, butter, etc. The slops and whey that was not used for feeding, were simply emptied right out the doors. I should judge this had been done for a good many years. About 30 feet away stood the old dilapidated privy, or, rather, the remains of it. This had been in use, say 40 years, and probably never once cleaned out. The soil in the dooryard was a gravelly loam, about 16 feet deep; then came clay. The well was dug down through this gravelly earth and about two feet into the clay. The water in it was simply what soaked through the gravel, and stopped when it came to the clay.

Now, when we consider all these circumstances, is it any wonder it was an unhealthy place? For a few years, such carelessness might answer; but as soon as the earth became saturated with filth, so it could hold no more, it must flow directly into the well. I say, for a few years it might answer. It might as far as the well water was concerned, but not if we had any regard for the purity of the air that we must breathe. Both pure air and pure water are necessary for the most perfect health.

Now, I have been particular in describing all this, because, with more or less variation, such conditions are to be found in very many farmyards. So bad are they in some instances, that it is but little better than suicide to allow them to remain.

I was simply exasperated the other Sunday when the minister told us we must welcome afflictions; for, "whom the Lord loveth he chasteneth." We have had too much of that sort of preaching. Why not urge us to do every thing in our power to ward off sickness and trouble; but when, in spite of our utmost efforts, they do come, then calmly say, "Thy will be done"? All the prayer in the world could never induce God to save a man's life if he has drank too much filthy water, or breathed too impure air. "Providence helps those *who help themselves*." "The sword of the Lord, *and* of Gideon," you know. The Lord will never clean out our filthy privies for us. After we have done our best, then there is some sense in asking for help, or even for help to do our best, but not in neglecting what we know ought to be done, then praying for every thing we want. I am not a preacher, Bro. Root—only a farmer; but sometimes I think a minister would know better how to preach to him if he would go and live with a farmer a year or two.

Well, we tore off that old wing, and let in the sun and air, and used no water from that well for years, but went 50 rods to a spring for all we wanted. Since then we have taken out the well, dug it deeper, and put in sewer-pipe instead of stones, and the water, I know, is pure and nice. The privy is over on the other side of the yard; but that was not necessary, for a coal-oil barrel, sawed in two, is used instead of a vault; and with plenty of dry muck or coal ashes we have no trouble in turning the filthy matter into beautiful flowers. I am, however, intending to change, soon, and build a privy at one end of the kitchen porch, and use large galvanized iron pails. This is for convenience of emptying, and for the comfort of the ladies in bad weather. But now for what I am particularly after in this letter—that is,

THE DISPOSAL OF THE SLOPS.

No wise man, nowadays, will pour them out around the door. They must be carried away, then, either by a drain or otherwise. A good underground drain is handy, but I am afraid to use one. Sewer gas is dangerous stuff, particularly where there are children. I know there are traps to keep it from coming out, but still it is risky. A friend of mine *knew* there was a leak or defect in his pipes, but it was neglected until his youngest child died of diphtheria. Gasoline-stoves are safe, perhaps, if properly used; but a few days since, a lady near here *thought* she turned the fire all out; then she filled the stove. She is buried now, and her husband would give all he is worth if he had never brought that stove into the house. No, we don't want to play with danger where the lives of our families are at stake. There is no drain, nor are any slops emptied inside of my dooryard fence—at least not more than once in a place, which can do no harm. For years I carried the water all away in pails; but last winter I found in Illinois a slop-barrel, on wheels, that is just the thing exactly. It stands by the kitchen porch, and will hold all the day's slops, even on Monday. A boy can draw it away and empty it. Disinfectants can be used occasionally, if desired, but will hardly be necessary, as it gets pretty well cleaned out on washing-day. And then there isn't the danger, when it stands out in the sun and air, that there is from an underground drain. In the coldest weather we may have to use the pails again.

My wife has said more pleasant things about that slop-barrel than she ever did about her oil-stove that cost five times as much, or about her silver teaset that I got her last winter. I have seen several slop-barrels, but none before equal to this. It is neat, cheap, and easily managed. They retail for $8.00, but I shall be pleased to order one for any of the friends who will send me $5.50, unless you, friend Root, will get a lot. The makers wrote me I might get some made here, and thus save freight for neighbors, and I should be pleased to turn this offer over to you. If you have any doubts about their being a splendid thing, write to my wife. I don't have a chance, any more, to look a little sour, when, coming in in a great hurry, my wife meekly says, "Can't you empty those slop-pails now?"

Hudson, O. T. B. TERRY.

Many thanks, friend Terry. Most surely is it true that we can not afford to take any risks; and since we have, by the aid of enlightened science, discovered that such diseases as typhoid fever and diphtheria are largely fed by foul matter in the air we breathe and the water we drink, how great is the importance of being careful! What must have been the feelings of that father when he found that there was even a chance that his child might have met death by the horrible disease diphtheria through neglect and procrastination on his part! Now, friend T., I want you to tell me what you think of my arrangement for disposing of the sewage. The one belonging to our house has just been finished, and I did it in this way: The ground descends on a gradual slope from our back door for some distance. The slope is sufficient so the slop on washing-days passes off freely into the garden; but in the winter time it has been in the habit of accumulating so that the opening frequently needed caring for. Well, a few weeks ago I had the boys dig a trench down the slope close by a row of apple-trees. Along the row of apple-trees was a row of well-rooted rhubarb pie-plants. The trench is about three feet deep and two feet wide. This was filled with stones picked up from the ground, according to the plan of the new agriculture, within 18 in. of the surface. As the drain is perhaps 10 or 15 rods long, the vegetation growing above it, and sending its roots down among the cobble-stones, will, it is presumed, take up and utilize the soapsuds, etc., about as fast as it is made. In case it fails to do so, the trench communicates at several points with our system of underdrains, although it is so arranged as to hold a foot or more of water before it flows over into the underdrains. The open end of the sewer-pipe communicating with this trench filled with stones is against the wall on the south side of the woodhouse, the woodhouse being made of brick. No windows or doors come near this opening. A large funnel, made of stoneware, something like a sewer-pipe, makes it easy to empty in the slops. Now, when I built it I did not think it possible that any gases could come up through this sewer-pipe to do any harm. At present there is no smell at all. Before it passes off, the fresh damp earth has absorbed it all. If foul-smelling gases should, however, be found coming out of this funnel, some other arrangements shall be employed. Perhaps your plan of a slop-barrel on wheels is the best one that can be employed; and if so, I shall employ it. Meanwhile we want a picture of the arrangement, and then we will see about furnishing them at a low price. It seems to me that at least 100 should be made at one time. You may, if you can, get figures on 100, and I will see what *we* can do on them during the fall months, when we have plenty of leisure. A matter that concerns the life and death of the little ones around our hearthstones should never be passed over lightly; and *may God help us* in a determined fight against diphtheria and the whole string of malarial fevers.

QUEENS TO CANADA.

TROUBLE AHEAD.

FOR the past six years *custom* has allowed queen-bees to pass between the U. S. and Canada in the mails without detention, although every first-of-January edition of the Postal Guide during that time has distinctly stated that *samples only* of merchandise are mailable between the two countries; hence the sending of queen-bees through the mails to Canada has been illegal, even if we did put on 10 cts. in postage. Custom, often, for a period of time, has more weight upon the minds of the people than do certain laws, so we lull our conscience to sleep and let custom rule until we are, without warning, rudely awakened. Such an awakening I received the other day by having a choice queen returned by the Suspension Bridge, N. Y., P. M., as "unmailable to Canada." As soon as I recovered my senses I wrote him as follows:

Postmaster at Suspension Bridge, N. Y.,

DEAR SIR:—The inclosed tag, doubtless, you will recognize as one attached to a little box containing a queen-bee and her attendants, which you returned to our postmaster as unmailable matter to Canada. I am aware that the postal regulations say that you are right; but to help advance a growing industry both in Canada and the U. S., postmasters of the past have allowed queens to pass to and from Canada as samples of merchandise (which they really are), much to the advantage of all concerned. I have sent, during the past five years, hundreds of queens to Canada, all of which have gone safely since I wrote "Queen-bee for the improvement of stock" on the tag. Now, will you not please do as former postmasters have done, and help advance our industry? By so doing you will only be following a custom of the past, and receive the heartfelt thanks of bee-keepers in all parts of the U. S. and Canada. Please reply, telling me what I may expect, as I have orders for a score or more of queens from Canada. G. M. DOOLITTLE.

Borodino, N. Y., May 21, 1886.

The following is his reply:

G. M. DOOLITTLE,—*Dear Sir:*—Your letter at hand this forenoon. Postmasters who have allowed bees to pass into Canada by mail have not understood the rulings of the P. O. Department. By reading Note 4 on page 770, in the January, 1886, Guide, and also note 20, on page 753, same Guide, you will see that merchandise is not mailable to Canada. I send to your postmaster a letter which I have from the department, on the bee-question. Please call at the postoffice and see this letter. You can then write to the department, and ask them to remedy the matter. We can not allow them to pass through the mail. WM. CARR, P. M.

Suspension Bridge, N. Y., May 25, 1886.

Upon calling at the postoffice I found the following:

No. 71,924, Canada.
POSTOFFICE DEPARTMENT,
OFFICE OF FOREIGN MAILS,
Washington, D. C., May 6, 1886.

Sir:—In reply to your letter of the 4th inst., inquiring as to the rule of postage applicable to bees addressed to Canada, I have to inform you that the transmission of articles of merchandise by mail between the United States and Canada is limited by the postal arrangement in force between the two countries to bona-fide trade patterns, or samples (specimens), not exceeding 8 oz. in weight, and that articles of merchandise such as queen-bees, sent for sale in execution of an order, or as gifts, are not bona-fide samples, and are not transmissible by mail from one country to the other. In this connection, see Note 4, of Foreign-Postage Table on page 770, and paragraphs 20 and 21 on page 753 of the U. S. Official Postal Guide for Jan., 1886. NICHOLAS M. BELL,
Superintendent Foreign Mails.

To Postmaster at Suspension Bridge, N. Y.

As my friend in Canada was anxious for his queen, I made a block out of ⅜ stuff which would slip into an ordinary envelope, provisioned it, put in the queen and ten bees, securely sealed the envelope, and registered the same at our postoffice, directing it via Buffalo.

To digress a little, I wish to say that this queen and her bees went through in perfect order, although they were securely sealed in two envelopes (the ordinary envelope and the thick register envelope). Does not this show that we take more precaution for ventilation of our queen-cages than is necessary? As soon as I heard the queen was safe in Canada I again wrote the postmaster at Suspension Bridge, telling him of it, and showing him by clippings from letters and the *C. B. J.* that queens were passing nearly every day to Canada by mail. I especially requested that he would allow queens to pass the lines until arrangements could be made and a new law rendered, allowing queens to pass legally. I also asked him how he came to stop queens now, when he formerly let them pass. Here is his reply:

G. M. DOOLITTLE:—Your letter of the 2d is at hand. I am sorry I can not allow your bees to pass into Canada. We have allowed them to pass until quite recently, and then stopped, only on receiving a letter from Washington, from the Supt. of Foreign Mails. I shall at once refer your letter to the department, and hope they may make satisfactory arrangements. WM. CARR, P. M.

Suspension Bridge, N. Y., June 4, 1886.

Now, friend Root and brother bee-keepers, what are we to do? It seems to me that the mutual interests of the bee-keepers in Canada and the U. S. demand that a law shall be passed, allowing us the privilege of sending queens by mail from one country to the other. But how are we to get such a law? "that's the question." I have written to the Superintendent of Foreign Mails about the matter. Had each and every apiarist better do so, or can we bring the matter about through the Bee-Keepers' Union? I had thought that it might be a good plan for that body to delegate Prof. Cook or Prof. McLain, to push the matter through. Prof. Cook did us good service when our own mails were closed against queens. G. M. DOOLITTLE.

Borodino, N. Y.

Friend D., this same subject was agitated several years ago, and I believe it was decided that stock of all kinds, exclusively for breeding purposes, was exempt from duty. If I am correct, we pay no duty now on queens only, sent by express to Canada. For some reason or other, it seems that the Postmaster-General has considered it expedient to enact more stringent rulings in regard to the transmission of queen-bees by mail, not only to foreign countries, but even in the United States. A letter has just been forwarded to us, sent by the Postmaster-General to a postmaster, notifying him that queens *only* were permitted to pass through the mails—no *bees* at all. We forwarded the letter at once to Prof. Cook, and told him if he thought best to take a trip to Washington to see about it, we would take the liberty of saying that money would be advanced to him for his time and expenses, providing he would undertake the task. It would be a serious matter to have queens excluded from the mails, now that such an enormous traffic has grown out of it; and banishing worker-bees seems, at present writing, to be the next thing to banishing queens. If queens can be sent to Canada in a sealed envelope, we can perhaps manage it that way almost as well as we have heretofore. I am not at all surprised that the queen and her attendants had all the air they needed, even though sealed up in two envelopes. I have for a long time been aware that we have been taking more pains for ventilation than there was any need of, unless, indeed, a larger number of attendant bees are included than is at all necessary. It may be that right here is where the trouble has come in. Unskillful queen-rearers have been putting more attendant bees in the cages than is necessary or advisable, and perhaps some of the postoffice officials have been stung. Whatever is the trouble, it needs the attention of every bee-keeper in our country, and it is needed at once.

COMB OR EXTRACTED HONEY.

A SUGGESTION FROM AN EXPERIENCED MAN IN DECIDING WHICH TO WORK FOR.

PLEASE send me a sample lot of about 100 lbs. of the new white-clover extracted, as soon as you have a good article. Almost any kind of honey will bring a reasonable price in comb; but a poor grade of extracted is almost worthless. Suppose I suggest to you that you tell the many readers of GLEANINGS, that when the bees are gathering a good heavy white honey of good flavor, that they run the apiary for extracted; and that when bees are working on inferior pasture that it is much more valuable in comb. I hope to do much more in honey another season. I have a trade that I can keep by always giving them a good article. I should much prefer being out of honey for a month or two than to put up a poor article.

Allegheny, Pa., May 26, 1886. M. H. TWEED.

Friend T., your suggestion is something I had not thought of before in just that way. Very likely an article would sell if put on the market in the comb, when it would be difficult to dispose of it in the liquid state. Will those who have had experience on this particular point let us know about it?

MODERN TRANSFERRING.

A MODIFICATION OF THE HEDDON PLAN.

MR. HEDDON'S plan of transferring is, I suppose, largely practiced by prominent beemen all over the country, and is most certainly a very great improvement over the old way of cutting out the combs; but it is just *two* jobs to every hive. He proceeds to drum out the queen and bees (that is, all he can of them, usually about half), and puts them on frames of fdn., in a new hive; sets away the old hive for 20 days for the young bees to hatch, then goes over the same work again. Now, I undertook a much shorter method, and I think I fairly succeeded.

I had five colonies this spring that were in box hives that I wanted in new hives, so I commenced on them the first of April. My idea was, that if I could get it done before the queens commenced laying it could all be done at one job. I will now give my experiment and results:

I commenced the first one in the evening; it was warm enough for bees to fly. I first prepared a new hive by putting in frames of fdn., and two combs partly filled with honey. I set the old hive a few feet to one side, put the new one in its place, and set up boards about it to make it look as near like the old hive as possible; for if you don't, they will not like to go in. I then proceeded to smoke and drum, as does Heddon, for about 80 minutes, when I found a good-sized cluster in my box. These I shook into the new hive. I next took the old hive away 50 yards from the old stand; took a hammer and chisel and knocked it to pieces, cutting out all the old comb clean; swept off the bees on the grass, where they soon "scooted" back home and into the new hive.

Next morning, about 10 o'clock, I proceeded to try another one. I got it into the new hive all right. At noon I went to dinner and rested awhile. I again went out about two o'clock to see the bees, and found my hive, just transferred before dinner, "gobbled" by the robbers, completely "gone up." I then saw my mistake.

Next day I went at it again with three more to transfer. If I lost all of them this time, I proceeded the same as before, except that I did not put any thing but empty comb in the new hives, and fed them after sundown; closed them up to one bee-space next morning, and watched close for robbers.

Well, now for results: In transferring five hives I lost one by not feeding at the right time. I have just carefully examined the other four, and found plenty of brood in all four of them, and they are building up rapidly on white clover, which is now (May 20) booming. In transferring these five hives I commenced with the first sign of pollen-gathering. I found in one hive 20 lbs. of honey and a small speck of brood, not half worth saving. By commencing this work at the first sign of *pollen* we may, by feeding the transferred colony a week or two, knock the old box hive to pieces and make a clean sweep at one job, for we seldom find any brood at that time, unless it is a very large hive, and well filled with honey in the spring, which does not often occur.

I consider, from my short experience, that this is an improvement on any plan of transferring that I know of; at least, so far as time is concerned, and I think it is reliable. There may be some objections found on further trial. I should like very much to hear from others who have had experience in transferring. Our object is, if possible, to learn the best ways to do every thing about the apiary.

North Springfield, Mo. W. H. RITTRE.

Friend R., the success of your plan depends upon being able to find colonies without brood. I believe it is laid down in the books, that all strong stocks commence rearing brood about the first of January; and about the first of April they should contain quite a quantity of brood. I am well aware, however, that common black bees, without attention, are often without brood when the first pollen commences to come in. Such can be transferred on the plan you mention, with little or no trouble. I have done the same thing in the fall of the year, when a weak colony in a box hive was destitute of brood, and nearly destitute of stores. I did not take the trouble to drum them out, however. I simply bumped the hive on the ground until I bumped out the bees and queen; and if some of the combs went along with them it did not matter much. A frame of brood from some other hive gave them a start in their new quarters, and the transferring was all done in about two minutes. The old combs were, of course, tumbled into the wax-extractor. In our locality, bees seldom have a surplus of pollen at any season of the year. On this account I have always felt that your plan and Heddon's was something of a loss, especially where much pollen had been gathered in the spring, before transferring.

SOME CHARACTERISTICS OF THE SYRIAN HONEY-BEE.

THEY FLY TAIL FOREMOST.

I SAID I liked them, but the like is the same as Mr. Osborn, of Cuba, writes me—they pile up the honey. He says he can stand the stinging of a superior honey-gatherer, which the Syrians are. I have two varieties of Syrians — the Jones-Harrington Syrians, and what Mr. Benton terms the Mt. Lebanon strain. This Mt. Lebanon bee can stand more smoke, and do more stinging, than any other I have yet handled. They scarcely get out of the way of smoke at all. Instead of running down the hive when smoked, they buzz and whirl around, trying to drive off the smoke, and keep trying. They act exactly as you have seen bees when on opening up a nest of ants upon them. If compelled to retreat, it is but a short distance to get breath, and back again in a moment they come, dilating their wings, and driving away the smoke. It seems as though you might smoke them to death before they would give up.

They do more off-hand stinging, or stinging on the wing, than either the Italian or brown bee. In fact, they seldom alight to sting. This is the case with the Mt. Lebanon variety. Even when they have inserted the sting they do not alight, but fly round and round to extract it. During the past week, more than twenty have stung the back of my hands without alighting. They seem to come tail foremost, and come with a vim at that.

I removed the queen of a very populous colony, when they at once commenced the construction of queen-cells, and in ten days fertile workers had filled nearly every vacant cell, both worker and drone, with eggs. This I had never before noticed. I have frequently seen fertile workers depositing eggs after the loss of a queen, and when all hopes were gone of rearing one (no eggs or larvæ within the hive), but it was something new to me to see eggs immediately deposited on the removal of the queen. The Syrians have more fertile workers than any other race I am acquainted with. But few colonies appear to be free from them.

W. P. HENDERSON.

Murfreesboro, Tenn., May 29, 1886.

A PRACTICAL METHOD FOR CONTROLLING SWARMING.

REVERSING THE BROOD-NEST, TO INDUCE BEES TO GO TO WORK AGAIN?

WELL, if I have not beaten the bees in a pretty easy way, and so completely, too, then I am mistaken. I never used or saw a reversible hive until this year; but now I have several in use, and, of course, the natural tendency is to experiment with them.

The first swarm that came out was put into one of our new reversible hives. When the bees had filled the hive with comb as much as they usually do—that is, within half an inch of the bottom-bars of the frame, the hive was reversed, to see what the effect would be. The first three days thereafter being unfavorable for honey-gathering, there was no change; but on the fifth day the bees began to build the combs to the top-bars (what was the bottom-bar), and to make each comb solid within the frame, by fastening it on all sides to the wood. All this was natural enough; but here is another experiment no one has thought of—or, at least, no one has mentioned it up to date. I had transferred about ten colonies from frame hives to the new reversible frames, and wanted the bees to stay in them and work in sections, but they would swarm in spite of me; after thinking the matter over for a while, and considering how best to get the better of the little rascals, and keep them at work in the old hive, and also to keep the old queen laying, and the colony in good working condition, I hit upon the following plan:

When a swarm came off I removed the queen-trap and sections; and before the bees could miss their queen and return to the parent hive, the brood-nest was reversed. By and by the bees returned and entered the old hive as if nothing had happened; and while they were going in, the queen was released from the trap, and the work was done. Now, the fine little trick I played on the bees was this:

When the bees entered the old hive and found the combs, queen-cells, and all reversed, they were so surprised and astonished that they really thought they had been hived, and were occupying a new house, and the idea of swarming again was given up. By this operation the "wind is completely taken out of their sails," and is what I call using the reversible hive to some purpose.

The time required to reverse the hive is not over one minute, and the time required to hive the new swarm is none at all; as the bees, when the trap is used, will hive themselves. Now, I have pointed out a few of the advantages of using the reversible hive and queen-trap. If the above operations are not strictly practical, there is a chance for some one to "get up" and explain. There is not the least objection to such a plan, as I am sure no colony will attempt to swarm again after being thus treated. By adopting the above, it seems to me swarming may be completely controlled.

Wenham, Mass. HENRY ALLEY.

Your suggestion is certainly an important one, and no doubt it can be made to answer a good purpose, although I am a little inclined to think, from what experience I have had with swarming, that the plan will not "always take the wind out of their sails," as you express it. Very likely the experiment will be tried by a great many, as it comes in just the right season. Almost any hive can be prepared in a short time so that it may be reversed after swarming, and still keep the surplus-receptacles in their usual place right above the brood-nest. If any others have tried the plan, will they please report?

LETTER FROM CHINA.

SOME VALUABLE FACTS FROM OUR MISSIONARY FRIENDS.

WHEN I first came to Foochow, which place is only a little north of the tropics (N. lat. 26° 7′) I found that well water here was not nearly so cool as it is in Oregon or Maine. Now, we are very sure that the interior of the earth is hot, while the temperature of the surface of the ground varies with the temperature of the air. But the amount of this variation decreases as we descend into the earth, so that at a depth of 30 or 40 feet we ought to find a nearly constant temperature the year round; and this temperature can not differ much from the *mean* annual temperature of the air above; hence, well water and spring water are much warmer in the tropics than in the temperate zones.

At Shau-wu a Chinaman ventured the remark that well water was warm for the winter half of the year, and cool for the summer half of the year. It seemed so to him, because throughout the colder half of the year well water is warmer than the air, and so at the first touch feels warm to the bare hand. You don't notice the same thing in your northern climate, because your houses are warmed by stoves; and then, too, the difference between the temperature of the well water and the hand is much greater with you there than it is with us here. Then, again, this Chinaman probably never drank well water in cool weather. He would not dare to. Our well at Shau-wu is about 25 feet deep, and has a temperature of about 67° Fahr. in summer and 63° in winter.

Recently in traveling among the mountains I took the temperature of several springs. One of these, about 1300 feet above the sea-level, had a temperature of 62½°. It is quite a copious spring, comes right out from the bowels of the mountain, and its temperature hardly varies the year round. Another spring, 500 feet higher up, had a temperature of 55°. I once tested its summer temperature, and I think it was 58°. In that region is a mountain about one mile high, and near the top is a monastery. I once visited this in the hottest summer weather, and in it was a well, the water from which was so icy cold that it made my teeth ache so that I could not drink it with comfort. A Chinaman who accompanied me said it was so cold that it "bit the teeth."

Three weeks ago I crossed a mountain-ridge about 3000 feet high. The water in a spring on the north side, 1500 feet high, had a temperature of 57°. Six hundred feet higher was another, with a temperature of 54°. Near the top was a third, with a temperature of 48°. Coming down again about 2000 feet on the south side of the mountain, a fourth spring, flowing from a seam in a ledge of rock, had a temperature of 64°. In each case I presume the temperature of the spring was not far from the mean annual temperature of the place where it was located. In high northern latitudes the ground freezes in winter to the depth of 20 feet or more. J. E. WALKER.

Foochow, China, April, 1886.

Friend Walker, is it not probable that these very cold springs you speak of, high up on the mountain, have some subterraneous connection at still higher altitudes, where snow and ice prevail? I suppose it is true in China, as well as in other parts of the world, that the highest peaks are covered with snow, even in the summer time; but even if not covered with snow, I suppose the temperature would be down to about the snow-point, and this might lower the temperature of the water so as to cause it to remain low, even after it issued from a spring several hundred feet lower still. We thank you for these interesting facts.

PREVENTING INCREASE.

HOW I HAVE TRIED, AND FAILED.

DURING the four seasons — the fifth now began — in which I have followed apiculture, I have made the production of comb honey a specialty, devoting some attention to extracted honey, and I endeavor to make all my operations subservient to that end. To do this, the most difficult problem that confronts me is that of swarming—not how much shall be allowed, but when and how shall it be done? I want to prevent much increase, and to that end I have read, studied, and labored. Last year's efforts were largely spent in showing how the plans of Cook, Heddon, Doolittle, and others, do not work. Every scheme I try to prevent swarming fails. The difference in locality will largely account for this, but not altogether. Dr. Miller's plans I have not tried, chiefly because of the time and labor involved.

I am now going to give the results of my experiments of last year, for although I have learned chiefly what can *not* be done, I am certain that I am much nearer a solution of the problem than ever before.

THE A B C PLAN.

I have repeatedly tried the plan given by Mr. Root; viz.: Take a frame of eggs and newly hatched larvæ; put it in a hive filled out with empty combs or frames of fdn. Move the old hive off, and put the new one in its place. Of course, the new hive will catch all the flying bees—or else it won't. I have known nearly all of them to remain with the old stock. Over half the time the old colony will swarm some later, unless I weaken them down so that they will do me no good during the season; while the artificial colony will often loaf in an almost empty brood-chamber until the queen is hatched and laying. Every time I tried that plan this year I failed.

PLANS OF MY OWN.

I have tried moving the queen and one or more frames to some other location. The bees left in this queenless colony do nothing but build queen-cells, and proceed to swarm as they hatch, providing I do not destroy the cells after the larvæ are all sealed up.

I tried the following expedient with several stands last year: I removed the supers, took out six of the eight frames, gave them two or three shakes, set them with the few bees still adhering in a new hive, and moved them off to a new location. I put one of the remaining frames in each side of the hive, filled up with frames containing starters, and put on the supers again. Every one of them swarmed soon afterward. I took out the old frames of brood, putting frames of fdn. in their places, and put the swarms back. Two of those came out afterward, leaving eggs and brood, and scarcely a bee to take care of the poor helpless infants.

THE ABOVE PLAN WITH NATURAL SWARMS.

With several natural swarms I tried thus: I put a frame of sealed or unsealed brood in each side of a new hive filled up with frames as above, hived the swarm, set them on the old stand, and put on the supers. All but two swarmed out again in from two hours to eight days; and those two showed signs of discontent for three weeks afterward. In all the above cases I had destroyed all queen-cells.

Again, last year I tried several times hiving a swarm in a hive that had recently sent off a swarm. Every one came out again in from three hours to three days, except two that were thus hived after the honey-flow had ceased. From some of these, by the way, I had removed about half the frames.

I regard it as a significant fact, that out of some 30 swarms absconding thus, only two have ever left the apiary. They always settle, and, when hived more to their liking, go to work as busy as—bees.

MAKING NEW COLONIES FROM SEVERAL OTHERS.

Prof. Cook says, that by taking one or more frames from several different colonies, and forming new ones, he can allay the swarming impulse. I do not know that the plan has ever succeeded with me, while I do know that it has failed a number of times.

SWARMING IN MAY.

I intended to make several artificial swarms, and form nuclei in May last year, but I was disappointed in not getting the queens I wanted in time. I did swarm two toward the last of the month, greatly weakening the stocks containing the old queens. They both swarmed about a month later.

WHAT DOES IT ALL MEAN?

If the above array of facts means any thing, it means that bees want to swarm; and that when they do, they want to set up housekeeping anew. After-swarms are more apt to stay when hived on frames of brood; but even they will loaf until the queen gets to laying.

NEW SWARMS DO NOT OBJECT TO HONEY.

While I say that bees want to go to housekeeping anew, I have never yet seen any indication that they object to a lot of honey in the upper story. My bees do not swarm until they have begun to store honey considerably. I always put on sections as soon as honey begins to come in plentifully. Last year I hived my swarms in new hives on new stands, leaving the half-filled boxes on the old stand, hoping that they would prevent after-swarming, but they never did. Following Heddon's teaching I put the surplus arrangements on the new hive and set the hive on the old stand. They go right to work in them, as if nothing had happened.

WHY MY BEES MUST SWARM DURING THE HONEY-HARVEST.

My experience convinces me that Mr. Doolittle's method of artificial swarming will not work here. His harvest comes in July. He has all of June to build up and do his swarming, and well may he make three colonies out of two within a week before that season sets in. But here, swarming and honey seasons come alike in June. Our vernal season is generally cool and backward of late years. I have never yet had a good yield from fruit-bloom; consequently, something like the horse that is blind in one eye and can not see out of the other, one-half of my bees diminish and the other half do not increase. That is a *little* stretched, however. About June 5th, white clover begins to yield copiously. Possibly one-third are strong enough to swarm in the next ten days. The rest will swarm all the way from June 15 to July 15. They take their time to it; but *swarm they will*, and don't you forget it. They do not quit when honey quits. Now, I do not give it up. I have already planned to do some artificial swarming this year, and I hope to meet with some success. But, so far as I have learned by experience, I see no way to do but to let them swarm.

OVERRULING.

But if we can not prevent we can overrule swarming. This is what I mean by overrule: Hive your swarm; put on supers, whether you had them on the old hive or not; set the hive on the old stand. Take the combs and remaining bees from the parent colony and unite them with one, two, or half a dozen weaker colonies, according to their strength. Work them so that the rapidly hatching brood will soon have those weak colonies booming, and put on supers at once. I have several colonies at work by this means that otherwise would have done me no good at all. I think the plan preferable to Mr. Doolittle's plan of uniting weak colonies before the honey-harvest, at least in this locality.

Mechanicsburg, Ill. GEO. F. ROBBINS.

Friend R., after you have tested these plans through a longer term of years, I think you will find that, as a rule, in many seasons you will succeed better. Your bees seem to have had a sort of swarming mania; and when they go at it in that way, I have oftentimes thought it was best to let them swarm. Where I was very anxious to have them finish a set of boxes, I have succeeded by removing the old hive to a new stand, and hiving the swarm in it. They had a new location, even if they did have their old hive and partially filled sections. Sometimes giving a large amount of room in the brood-apartment seems to satisfy them. At other times, nothing short of a new location will answer; but when they *are* satisfied, they go to work with such a vim that it seems as if it were worth while to humor them some. In friend Terry's new book on horses and cattle, he tells us how he got large yields of milk from an eccentric cow. He conceded to her whim, and she paid him by a great yield of milk; and altogether it paid to let her have her own way. Is it not often the case with a colony of bees, when they want to start out in a fresh home?

MARKETING HONEY, AND ITS WINTER CARE.

THE RESULT OF OPEN WINTERS.

THE same general rules which guide us in marketing extracted honey are applicable in the case of section honey. It should be made attractive to the eye and satisfying to the taste, and should bear the name of the producer upon each package. The greatest care should be taken to prevent the surface of the comb being soiled or broken. If so disfigured, it should not be put upon the market unless it can be sold without the producer's name. The sections themselves should be scraped and sandpapered till they shine, and the crates should be either white and clean, or nicely stained or painted. Each package should "set off" its contents. Honey should not be sent to market in the half-stories, or cases of the hives, but in nice white crates made for the purpose, with glass at one side at least. There is a great deal in a show of honey, and so the more of these crates piled up in a window the better, because the honey is made more attractive, as also more conspicuous. The winter care of honey is important. Extracted honey, if not kept in a constantly warm place, will granulate; that is, it will become hard and white, and appear much like lard. Many people think this change in honey is a sure sign of adulteration, and begin to talk of sugar, but such poor creatures do really deserve our pity. But we must overcome a just contempt on our part before we can bestow such a sympathy. To reliquefy honey it is only necessary to warm it slowly and thoroughly. Proceed as follows:

Take a tin or iron vessel of sufficient size, and place inside it a wooden block or light iron grating of some kind, about half an inch high, and large enough to support the vessel containing the honey. Place this latter vessel upon its support, and fill the outer one with lukewarm water as high as possible without covering the honey. Remove the lid from the honey, and place the whole affair over a slow fire; keep the water just under the boiling-point till the honey is all melted. Seal up again while warm. Section honey should be kept where it is dark, dry, and warm. The light will spoil the color of the capping; damp will burst the cells and sour the honey; and cold will granulate the honey.

The winter of 1884 was so severe that our bees neither required nor could get much care. The greatest trouble in open winters is on account of the tendency bees have to fly when the weather is unsuitable, and the constant uneasiness among them. They are disturbed every few days by the heat, and do not really settle down quietly enough to winter well; and as a consequence of all this they consume far more honey than is good for themselves or their owner; and often, before the latter is aware, the honey is all used up and the bees starved.

Another trouble consequent upon the large consumption of honey is a great tendency to dysentery. Our endeavor should be to keep the temperature of the air within the hive as unvarying as possible. With bees packed in the cellar or bee-house, we shall have little trouble; but with those in the clamp it is another matter. During severely cold spells the hive-entrances should be kept almost closed; in "reasonable" weather they should be wide open; and during mild spells, open, and shaded from the sun so as to keep the air as cool as possible inside the hive. During warm spells, when there is no wind, and when the air is really warm, leave the entrances open and unshaded for a few hours each day, that the bees may fly. At all times keep the entrances clear of dead bees, snow, ice, etc. Protect from all wind, and give the bees candy during flying spells, when short of stores. Don't let them starve. MATHIAS SCHNEIDER.

McIvor, Mich.

WHAT KILLED FRIEND MILLER'S FIGWORT?

A YOUNG LADY SHOOTS THE BEES.

LIKE Rip Van Winkle I have been sleeping for a while, but not for twenty years, so far as being heard much about the bee-business is concerned, so here I come again. I think I can guess what killed Dr. C. C. Miller's figwort. Last year about this time I had several rows of figwort in my garden. It was in its second year's growth, when I noticed it looked yellow and sickly, and did not seem to grow much, when one day I was hoeing in it and discovered that something was working at the roots; and on further search I found the roots were nearly all eaten away by a large worm which, on first sight, almost any one would take to be the common cut-worm that is so destructive in gardens and cornfields; but on a closer inspection they proved to be a different species altogether. They were a light pink, or flesh color, and from one inch to an inch and a half long, and their work was different from the cut-worm, as they went inside of the stalk near the ground and then went down into the roots, which they ate out clean, excepting the bark. They seemed to prefer two-year-old roots rather than one-year ones.

As soon as I made this discovery I began digging up all of the plants, and could find generally from four to eight, and in one case I took as many as fifteen worms from a single hill. This disgusted me with the figwort, so I dug up all I had, and don't let a stalk grow since, although thousands of young plants are coming up all the time now.

The other day, as a bee-man a couple of miles from here was going to the field to work he told his daughter, a buxom lass of 18, that a certain stock of bees didn't act right, and told her to watch them, and if they swarmed, and tried to go off, to shoot them, looking at his wife, and laughing as he said it, but never dreaming she would do any thing of the kind. But pretty soon, out came the bees; but not making any attempt to alight, they rose right up from the hive and began to work away. She, seeing they were going, concluded something must be done to stop them, so she ran into the house and grabbed a shot-gun loaded with a heavy cartridge of shot, and out and after them. By this time they had got off quite a piece, and were rising rapidly in the air, in a funnel-shaped cloud, and were getting nearly out of sight, evidently fixing for a long flight, when she raised her gun, braced herself, and, pointing the muzzle straight at them, blazed away. She says a shot bird would not have dropped to the ground any quicker than those bees did, where they clustered on a little bush, and she hived them at her leisure. Well, that shot took the romance all out of them, for they went right to work like good bees. This morning I brought that swarm to my apiary. A. A. FRADENBURG.

Port Washington, Ohio, June 17, 1886.

It may be, friend F., that the failure of figwort, after standing two or three years, is owing to some such worm as you describe, that feeds on the roots, although we never discovered any thing of the kind when we plowed up our old plantations.—Bringing down a swarm with a charge of shot is a rather new idea, but not so very improbable after all. We have had many reports indicating that throwing dirt, sticks, or stones, through a swarm just as they are getting ready to move off demoralizes them so as to cause them to cluster. Perhaps the shot did the same thing in the case you mention. Where it can be done conveniently, we wish some of our bee-keeping friends who have shot-guns handy would give it a test. Firing guns so as to disturb the bees by the sound has often been recommended; and may be that sending a charge of shot right through the cluster has before been recommended, but I do not now remember of any such case.

"GETTING BEES OUT OF SECTIONS."

FRIEND HEDDON'S METHOD.

I HAVE quoted the above heading from brother Miller's article on page 475. I think I am safe in saying that we all thank friend M. for shedding more light upon this practical subject; but, after reading his article, I felt as though I could add a little more brilliancy to the torch before I passed it along.

First, let me say, that, years ago, I tried the doctor's plan of opening several hives at a time, in order to facilitate matters when driving the bees down with smoke. When they were at all inclined to rob we blew the smoke through a wire-cloth frame laid over the top of each of the supers, opened. We didn't like the plan, and abandoned it. The one which I will now describe, and which is more briefly described on pages 80 and 81 in my book, suits me the best of any method I have ever tried or heard of.

You know we use a one-story case holding 4¼ sections, open top and bottom, all cases being interchangeable, and used on the tiering-up plan, as described on page 80 of the book above referred to. By the above system the most finished cases are always on top; and when we find one ready to come off, we remove the cover, and quickly and sharply puff smoke into all the ranges between the combs. With our mouth we now energetically blow between all the ranges, and we do both as quickly as we can write these words. No bee is hardly allowed time to commence to fill his sack. More than four-fifths of the bees immediately descend out of the case. We now quickly lift it, cover the hive, and, holding it over the alighting-board, shake it with a jerking, tremulous motion—a motion that, above all others, will dislodge the foot-hold of bees—and I think I am safe in saying that not over 50 or 100 bees remain. We now carry the case to our screen-house, which is described in our book on pages 56 and 65. Here the cases are stood on end, standing on each other when lack of room requires; and as the light passes readily through these shallow ranges from either side, the bees leave the cases in a few moments, when the screen-house doors are opened and all the bees are ejected into the open air in an instant. All this is done with such dispatch that the robbers can not get the first taste, even during times of honey-dearth, when most persistent.

We have found the above method as speedy and practical in the apiary as it looks on paper. It has given us great satisfaction, and we can't imagine how the method can be excelled. Of course, it would not work well with two-story supers, or closed-top sections; but we do not lament this fact, because there are so many other reasons why we could not be induced to use either.

Relative to this subject, I wish to mention a principle among bees, not mentioned among others, and, I believe, not usually recognized. Ancient authorities have told us that smoke, or any thing else that frightens bees, saves us from being stung, because, when frightened, they fill themselves with honey, and, when so filled, neither desire to nor can they sting. Now, I have found that the *fright* they receive is what prevents their stinging. I mean "fright" direct, no matter whether they fill themselves or not. With smoke, I have perfectly subdued very angry swarms while clustered upon a branch or fence-rail. JAMES HEDDON.

Dowagiac, Mich., June 18, 1886.

Friend H., your suggestions indicate beyond question that you have had experience in the matter; and since you mention it, I remember that we used exactly the same plan to get the bees out of the sections years ago. The tremulous motion looses the bees' foot-hold, and then a quick shake will tumble them out pretty rapidly.—I am glad you have decided to use none but open-top sections, for almost every season we have more or less complaints from parties who wanted closed-top sections, only they forgot to say so. Some go so far as to say they would not take open-top sections as a gift, and ship them back before waiting for orders. In vain have we told them that the openings could be closed by means of strips of wood or enameled sheet. They had their own notions of things, and would not be pacified. Of course, we are always glad to make closed-top sections where people want them; but where nothing is said about the openings, we always send the regular goods.—You may be right, friend H., in saying that bees may be *frightened* into subjection, without filling themselves with honey at all; but we have been so much in the habit of subduing them while on their combs, with honey right before them, that it has never before occurred to me the same thing might be done without any honey at all. By the way, after you get the bees out of your cases of sections, how do you send your honey to market? You may have told us about it; but if so, I have overlooked the fact. Tell us a little just how these one-pound sections shall be handled after we get the bees out.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

HOW AN A B C SCHOLAR HAS SUCCEEDED, AND RESULTS.

AS I see in GLEANINGS you notice even the least of bee-keepers, I thought I would tell you my experience. I live in an excellent farming section, with lots of basswood. In the spring of 1884 I bought a swarm of bees of Mr. Harrison. They were in an old-fashioned box hive, fair hybrids, and very strong. They "hung out" all summer, but did not swarm. I got very little white honey; but in August they were transferred into a Quinby hive, and made about 10 lbs. from the buckwheat flow. Last year they swarmed twice—the first, July 13th; the second, July 22d. I had them packed in the most careful manner possible, six inches of chaff on each side, except the front, and the upper story filled. The first swarm filled their hive (every frame was filled with empty comb), and made about 25 lbs. of as nice basswood honey as you ever saw packed in 1½-lb. sections.

The second was hived in an old box hive, and wintered well, though only half full of comb. I fed them 5 lbs. of granulated sugar. All three were packed as well as I know how. This spring, while two had wintered finely, the first swarm of last year was dwindling to a pint of bees, with a patch of brood as large as the palm of your hand. I put them in a nucleus hive to hold two frames. The next day they swarmed out till there were not three bees left in the hive. In a few minutes they came back. I think they lost their queen in this sally.

On opening the old hive, in the latter part of April, I found solid sheets of brood and drones capped over. Last week, with the help of Mr. Harrison (my confidential friend in bee-keeping) I transferred the box swarm. We had poor success. The combs fell down, but I threw away all but the brood, and put in sheets of comb built on foundation. It was his second attempt, and I had acted as an assistant at one other. I can't tell how it will get along now. I am a great enthusiast on the subject of bees.

In my limited experience I have found bees to store pollen in the side boxes, but not in the upper story. I am reading your A B C book. My account in the bee-business would be as follows: Expenses for hives and bees, $6.50; value of honey, $6.00. Value of bees, $10.00. Profit, $9.50.

JARED VAN WAGENEN, age 14.

Lawyersville, Scho. Co., N. Y., May 3, 1886.

SHALL WE PERMIT MISLEADING OR FRAUDULENT ADVERTISEMENTS IN OUR COLUMNS?

I inclose a clipping from a paper. Can you put it in labels, and also put your name below it? I admire such a stand as this by any editor, and only wish that more of them would do as this one has done.

Duarte, Los Angeles Co., Cal. W. W. BLISS.

Below is the clipping referred to above:

> We will not publish, for any price, any patent-medicine or lottery advertisements, or humbugs or "sells" of any kind.
>
> Our advertisers are all reliable men; and if subscribers, in opening a correspondence with them, and also in any order they may afterward give, will state that they saw the advertisement in *The Baltimore List*, we will guarantee that they will receive fair dealing in every instance.

Friend B., we have, as you may know, for several years insisted that our advertisers be responsible men. As we once suffered considerable loss, however, because one of our bee-men, who had hitherto been considered good, failed in business, we have thought best to change the wording of our guarantee a little. It is not always an easy matter to draw the line between advertisers who advertise with a deliberate purpose of fraud, and those who lack judgment, and make a failure. The former, we can readily guard against; and we always shut down on the latter when we think the circumstances warrant.

WHAT CAUSES WAX TO CRUMBLE?

I have been trying to make a little foundation, and find, after working my wax a short time, that it gets tender, and crumbles. Thinking perhaps you would be kind enough to tell me what the trouble is, I come to you for information. Would a little paraffine help the matter any? Bees are doing finely. D. J. SPENCER.

Hartford, O., June 3, 1886.

Wax becomes brittle by working, in consequence of being heated hotter than is necessary; also, after being melted many times over, it becomes crumbly, as you mention. There is no remedy that I know of, unless it be adding a considerable quantity of fresh wax. We have had specimens of wax that seemed about like Indian meal; and, failing entirely to get it to run together, we sold it to the wax-bleachers, to be used for making wax candles. By no manner of means add paraffine. See our caution in regard to its use, in the A B C book.

WHY DO MY BEES BUILD DRONE COMB?

I should like to know how it comes that the bees build nearly all drone combs, or why they do so in this locality. All the new frames that I added to the brood-nest in parent hives had worker foundation. Every time the bees start drone combs, they are storing surplus fast, as there is a great flow of honey here at the present time.

JACOB S. WEIBLEY.

Kistler, Perry Co., Pa., June 5, 1886.

Bees naturally build drone or store comb during a heavy yield of honey, because the same amount of wax and the same amount of labor will contain a greater quantity. Drone combs in the surplus-receptacles will do no harm unless they injure the looks of the comb honey. The remedy is to use foundation, instead of letting the bees build their own comb.

HOW TO GET RID OF DRONES.

Could you tell me the best way to control the breeding of drones? Are the "drone-guards" advertised, good for the purpose? Also what will remove propolis from the hands and cloth covers?

J. H. SCOTT.

Gaylord, Otsego Co., Mich., May 21, 1886.

The drone-guards are exactly the things, friend S. Printed directions on the paper that is wrapped around them will give you all the instructions you need. We control the breeding of drones by the use of comb foundation.—The best thing to remove propolis that we know of is a soap that we advertise for the purpose, called "scourine." Benzine will also readily dissolve it, but it is dangerous to have about. Notice what friend Terry has to say about the use of gasoline.

WAS THE QUEEN LOST IN THE SWARM? OR WHAT MADE THEM ACT SO?

I had my first swarm yesterday morning, and I want to ask if I did right in the way they were hived. The bees flew around near the hives for about 20 or 25 minutes, then went in the direction of a small swamp, and first alighted on a board walk that crosses this marshy ground. They were not in a compact mass, but scattered over a distance of three or four yards. I tried to sweep them into a cloth, but did not succeed. They then went about 15 yards, and alighted on the grass at the edge of the swamp, in about 10 or 12 bunches about the size of large potatoes. I succeeded in getting them hived by placing over them a part of an old box hive. They would crawl into this, then I would shake them in the top of the hive; I got them all in except a few scattering ones, then moved the hive about 300 feet away on the other side of the house; but in half an hour they had left the hive, and I can not say where they went. I thought they had gone back into their old hive, as there seem to be as many bees there as before, and that the queen was lost in the swamp. Did I do right in hiving them before they were in a compact bunch?

0—JOHN L. KUGLER, 4.

Philadelphia, Pa., May 24, 1886.

Friend K., I think I should have waited until the bees collected in one compact cluster. This would be an indication that the queen was with them. Whenever there is any doubt about having secured the queen, a comb containing some unsealed brood should be given, or they will surely desert just as yours did.

TRANSFERRING FROM LOG HIVES; ALSO A KIND WORD.

We take pleasure in acknowledging the receipt of the goods sent us. We now thoroughly understand the one-piece section, and say they gave perfect satisfaction. We started in the fall with 25 colonies, nearly all in hollow log hives. We lost 2, and have now 23 colonies. We transferred into the chaff Simplicity hive. Some of our old hives were hollow gums, and could not be split; so in order to transfer them we laid them on the side and nailed strips along them so as to guide the saw, and sawed them open with a cross-cut saw. We have 408 sections in 17 colonies, most of which will soon be ready to take off. We live almost on the backbone of the Alleghanies, where the mountain-sides and deep ravines are covered with locust, poplar, basswood, etc., and we find the bee-fever is a little contagious among those who come near enough to see the sections filled with beautiful white comb honey, ready to cap over within three to five days. As a remedy for their disease, we have advised them to take GLEANINGS. Don't you think it would help them?

HOUCHINS & HUGHES.

Pipestem, W. Va., June 7, 1886.

CENTRAL VIRGINIA FOR BEE-KEEPERS.

I have long wanted to write a few lines, showing our bee-keeping friends the advantages of this section. In a few words I will tell the facts. We have a mild and healthy climate; pure air, and an abundance of excellent water; freedom from malaria and mosquitoes; soil good, and easily worked, and not liable to droughts, though much of it is stony and hillsides. Apples and pears grow finely and of excellent quality; peaches grow well, and yield excellent crops when not cut off by frosts. Grapes, and all the small fruits, do admirably. Roads and schoolhouses are already built. Bee-pasture is in abundance, and mostly going to waste for want of apiaries. Much of the above applies to the whole of the Blue Ridge, though some localities are better than others.

There are two points worthy of regard—the difference of elevation of the hillsides causes a lengthening of the flowering season. From our house to the foot of the hill (three miles by the road) makes a difference of ten or twelve days in the blooming of the yellow locust, thus prolonging the honey-gathering days; and then the tenacity of the seeds of the red clover. I have plowed under the second crop of clover when the seeds were ripe; cultivated two crops of corn on the land, then plowed the third year, and raised an excellent crop of hay without sowing any more seed, and this can be done, rotation after rotation, with clover, corn, wheat, or rye, indefinitely. Catnip grows on all our hillsides. Raising fruit is done very profitably, and land can be bought so cheap that I believe a good investment would be to pasture sheep, raise bees, and let the yellow locust grow up spontaneously till they are large enough for fence-posts.

A. H. VAN DOREN.

Liberty, Bedford Co., Va., June, 1886.

HOW TO USE THE JONES GUARD.

You say in your catalogue that the Jones bee-entrance guard can be fixed over the entrance when the drones are all out, and at night destroy the drones. Now, I should like to inquire if there *ever* is a time when the drones *are all out;* and if so, when is it, and how early in the season will it do to destroy them?

A. J. W.

Macedon, New York.

During the warm months of the year the drones begin to take their flights from the hive about 1 P. M. By half-past one, most or all of the drones will be out; so if the guard be attached to the entrance soon after, the returning drones will be shut out, and may then be disposed of. The few remaining drones, if any, will be young drones, and can be gotten rid of in like manner. If more convenient, having found the queen, all the bees can be shaken off the combs in front of the entrance. The workers will readily pass the guard, and the drones will be excluded. See page 461.

THE MARKED SUPERIORITY OF ITALIAN OVER BLACK BEES FOR WORKING ON RED CLOVER.

I have noticed lately in one of the bee-journals that some writers go back on red-clover bees, and say that the idea of such bees is all "bosh;" and as I have had some experience in the matter I will just throw in my "mite." While living on a new place, some nine miles from here, I seeded six acres of fallow ground with "mammoth" red clover—not peavine. It caught well, and the next year it was a perfect sea of bloom, and at that time there were 3 colonies of Italians and 75 colonies of blacks in the neighborhood. When I cut this clover the bees were at work on it vigorously; and by actual count by myself and hired help there were five Italians to one black bee. We counted the bees in a number of places in the field, and found them to average as above. I would give $25.00 for a colony of bees that would work on red clover as vigorously as did those. These bees were raised from a queen sent out by Mr. M. Quinby, just about the last of his shipping queens, and they were the prettiest Italians I ever saw. GEORGE A. WRIGHT.

Glenwood, Susq. Co., Pa., June 2, 1886.

HOW DO BEES CARRY WAX?

Is it a fact, that the bees use their pollen-baskets for the purpose of carrying wax as well as pollen? I was greatly amused several days ago at a sight I never saw before. When I was putting on my surplus boxes the fdn. dropped from one of them, and so I laid it on top of one of the hives. As I was passing that way later, my attention was called to the hive, where I discovered several bees at work on the piece of fdn. They would nibble it off with their mandibles, and then pass it back to their pollen-baskets, and put it on so that it would stay there. I noticed they worked at the fdn. all the afternoon.

The prospects for a good honey-flow were never better in this section than at the present time. The season is about two weeks earlier than usual. My bees are all very strong, and are gathering honey slowly; but I expect in a few days that they will begin on the white clover, which is just blooming out. Now, while we in this section do not have such honey-flows as we read about in GLEANINGS, yet I had one colony store 40 lbs. of clover honey in 1-lb. boxes. I often see in GLEANINGS where yourself and others speak very highly of clover and basswood honey. In this part of the State we have an abundant flow of honey from a small white flower which surpasses all clover or basswood honey I ever saw. It is a wild shrub, and blossoms in August. I may send you a sprig of the flowers, if I have time to get them, and box them up when they are in bloom this summer, and perhaps some of the honey too. I am sure you will pronounce it excellent, as my customers all do.

10—GEO. W. BENNETT, 15—33.

New Bedford, Mass., June 7, 1886.

Friend B., the matter you mention is not at all new. Bees will often stop work right in the height of basswood and clover bloom to collect wax, in the way you mention. I am inclined to think they use it as they do propolis; and I have imagined that they become more eager for gathering wax, varnish, resin, or different kinds of gum, when we begin to have cold nights. It seems to me that they begin to feel an instinct prompting them to shut up cracks before the approach of winter. Perhaps you had been having some approach to cool nights about the time you wrote, and this set the bees in a mania for hunting propolis.

HYBRIDS — AND WHAT IS A HYBRID BEE?

If I understand rightly, an Italian hybrid is the result of a cross of a pure Italian queen with a black drone, and that her drones are pure Italian. Will the drones from her daughters be pure to cross with Italian queens? Are the progeny of a black queen crossed with Italian drones, as cross and as good as the others? F. CLARE.

L'Original, Ontario, Canada, June 9, 1886.

Friend C., the theory is, that the drones produced by a pure queen, even though she be impurely mated, will be pure, or full blood; and I believe all careful experiments corroborate this theory. In view of this, the drones from a black queen mated with an Italian drone will be pure black drones. As to whether the workers will be any different in the first case from those in the second case, is a question. We have very carefully watched the habits of hybrid workers from pure black queens and pure Italian queens. There seems to be little if any difference.

BASSWOOD ON SANDY SOIL.

Will you or some of our bee keeping friends tell me how basswood will do on sandy soil, as I think of starting a grove on sandy land? Maple, and such trees as walnut and locust, grow well here.

ELMER SKINNER.

Morocco, Newton Co., Ind., May 23, 1886.

Friend S., we find basswoods growing naturally on all kinds of soil, although I think they thrive best where the ground is somewhat low or damp. On this account they seem to thrive better in dense forests, where the sun does not strike near the root. We seldom see good strong thrifty basswoods on high hills, unless near springs.

CALIFORNIA BEES PROHIBITED IN CERTAIN FRUIT-BELTS.

Here we are, only thirteen miles from the beautiful city of Los Angeles, of which we had heard so much, but had never seen; while away in the distance we view the snow-capped peak of "Old Baldy," which reminds us of "Old New York," our old home, three thousand miles away. Although I am but 19 years of age, I have read GLEANINGS for three years, and could not get along without it.

Bee-keeping is prohibited in the fruit-belts, owing to the alleged injury to the fruit, done by the bees. As I have been in the fruit-region only, I have seen but few bees, and consequently I am unable to give you a satisfactory idea of the trials and tribulations of the Californian apiarist; but as I intend to travel from Los Angeles to San Francisco on horseback, I shall probably see a great many bee-ranches, as they are called here, and shall then be able to tell you about bee-keeping here.

To those who are thinking of coming to California to reside, I will say, Come and see the country before you bring your family, for no description could convey to you a correct idea of this country, as it is so entirely different from the East that it seems like another world. People here speak of the East as "The States." C. E. HUTCHINSON.

Fulton Wells, Cal.

A "DRONELESS" COLONY.

I have a hive of bees that are droneless. They were a late swarm last year, but did nicely, and are still growing. They are getting to be "immense." Will you please inform me as to the probability of their swarming without drones? I have looked the A B C book through, but do not find any thing upon that point. Can there be any thing done to encourage them in swarming? **N. C. ARNOLD.**

Wilson, N. Y., June 14, 1886.

Why, friend A., that is a new idea. We have heard of *queenless* colonies quite often, but I don't know that I ever before heard of *droneless* colonies. To be sure, they will swarm, and it won't make a bit of difference about their having no drones. If you will examine the A B C book further you will notice that a queen rarely if ever mates with drones of her own. Nature has wisely arranged it so that she can not do it; therefore your bees are all right without any drones. If you had a whole apiary without drones, it might be a little different; but this, I believe, never happens.

WILL TRANSFERRING START SWARMING? OTHER QUESTIONS BY A B C SCHOLARS.

We began the season with eight strong colonies, six in box hives and two in Simplicities. We have transferred one, and have had four swarms up to date. Just as we got through transferring we looked up and saw a large swarm settled on a small apple-tree, a short distance from where we were transferring. We do not know whether the bees came from the hive transferred or from some other hive. We should like to know whether transferring will cause immediate swarming or not; or would they have swarmed anyhow in a short time? The swarm is doing better than the transferred colony. Our bees are all blacks, and we want to know if we can not run them for honey while the honey season lasts, and then get an Italian queen and Italianize them all. We are members of the A B C class.

We read Mr. Doolittle's article in regard to how to get honey into the sections. Now, that is our difficulty here. What would be the best plan to get honey put in sections in the Simplicity hives? How do you make dummies? I will also state that our bees wintered well in the open air, both in the Simplicity and in box hives, without any protection.

S. E. & I. E. PHILLIPS.

Fairburn, Ga., May 3, 1886.

I do not think, friend P., that transferring would be apt to induce swarming, but on the contrary. It might, however, induce the bees to abscond because they were displeased with so much changing and handling. I should suppose you could tell whether the swarm you mention came from your transferred hive or not, from the amount of bees remaining.—We do not use dummies. A chaff division-board would probably answer the same with the Simplicity hive.

A SWARM CHASING A TWO-WHEELED "SHAY."

A friend of the writer, while visiting in Maine, on the Androscoggin River, saw a swarm of bees on the wing, whose course seemed to be directly across a bridge over the above river, and just ahead of them was an old-style 2-wheeled "shay," containing an old gentleman and his wife. The vehicle was wide, and the back open, and the occupants were sitting so there was quite a space between them. My friend was quite interested to see if the bees would turn out for the chaise, as their course seemed to be directly for the open window, and just then they went through the open space between the couple, and out in front over the horse, and alighted on a tree near by. The lady was on the ground in an instant, with the greatest bewilderment at what had happened; but no harm was done, and the bees soon went into a hollow tree close at hand.

HOW A BEE-MAN RECOVERED HIS WINTER LOSS BY LETTING HIS BEES "SLIDE."

While visiting in my old home, Virden, Ill., about a year ago, a friend where I stopped lost some 18 swarms the winter before, and had but five left alive. We must call him a rather negligent bee-keeper, for he left his hives of empty comb standing on their summer stands all the spring. At swarming time, eight of those hives were occupied by absconding swarms. He saw two swarms come from a westerly direction and go into two of the hives, without alighting. The other ten hives were filled by his own bees, so he is sure none of the eight were from them, but must have come from a distance. **J. L. PEABODY.**

130 School St., Lowell, Mass.

Friend P., the facts you give us throw additional light on this matter of decoy hives.

IS IT ADVISABLE TO SELL BEES AT AUCTION?

I now have 63 colonies, and they are doing well. I think I shall increase to about 80, and then stop. My plan for strengthening weak colonies is the same as yours. I built up about ten, some of which were very weak. I go to a strong swarm and hunt the queen, and set her and the frame back, and then lift out a frame full of bees and brood, and give it to the weak colony. It works like a charm. If they quarreled any, a little smoking made them agree. Most of the time they seem glad to have company.

I think I shall sell off all of my bees this fall. I want to travel next summer for my health. Which would you advise me to do—sell them at a public sale, or try to sell them any way I can? I want to sell out, not because they don't pay, for they do pay, and pay well.

I bought three settings of Pekin duck-eggs, and I got 18 ducklings. They are four weeks old, and I have all 18 of them yet. This spring I raised seven young canaries. I tell you they are beauties. They are cute. I have 140 young chickens and 116 old ones. The two first hens I set, I gave them 30 eggs, and they brought out 28 chickens. I do all of my housework with the bees and ducks and birds and chickens. Don't you think I have enough to do?

MRS. MALINDA A. WILKINS.

Seneca, Kansas, June 8, 1886.

As to whether you should sell your bees at public sale or otherwise is a matter that somebody in your immediate locality can answer better than we can. I think perhaps if you advertise them in your local paper you might realize more from them than by public sale.—I should think you had done extremely well with your poultry business, with the other work you mention. We have been greatly delighted with a brood of Pekin ducks, but we have not succeeded as well as you have in raising them all.

HOW SHALL WE KEEP POLLEN OUT OF SECTIONS?

My bees want to put pollen into sections all the time when they work on white clover. They will put it in nearly every one when making worker comb, and some in drone comb. I use a honey-board over the frames. I wish C. C. Miller would tell us how he keeps it out, as he lives in a white-clover section. I believe the bees gather so much that they don't know what to do with it. I have known them to store it 12 inches above the brood. Bees are swarming, and work in the boxes quite well. The weather is very dry, and has been for some time. HENRY WILLSON.

Clinton, Ill., May 3, 1886.

As a rule, the use of separators discourages the queen from going into the sections, and, as a consequence, little if any brood is stored in them. I think your experience is a little unusual.

HOW TO CONSTRUCT A HONEY-ROOM IN THE GARRET, FOR BEES.

We have just had a flood, and I had to take my bees up stairs. I set them at the windows, and they did all right. I have your A B C book, and have looked through it thoroughly, and have failed to find out how to make a large bee-hive or a small room to put a hive of bees in, and take off the sides of the hive, and let them build comb to the sides of the room, hive, etc. You speak of something of the kind under the head of "Bees in Garrets," but how do you get into the room to cut the honey out? I should also feel obliged if you would give me a description of the hexagonal bee-hive on page 225, in A B C book. HARRY L. COOK.

Chattanooga, Tenn., May, 1886.

I do not know how to direct the making of a bee-garret. The results of investigations, wherever I have found such garrets, have been so unfavorable that I do not believe it is best to spend much time or money on the matter. The Hexagonal bee-hive you allude to was the project of a friend who wanted to see what he could do. The hive cost him something like $50.00, and I believe it gave him several good yields of honey. We had an engraving of it made, and it was described in GLEANINGS for Feb., 1882, page 62. It is interesting as a curiosity, but I don't believe any one wants many hives of that kind.

DO BEES GATHER HONEY FROM HARD MAPLE?

On page 658, October No., last year, friend Doolittle says that, according to his observations, bees gather very little honey from hard maple, but plenty of pollen. Now, according to my experience the hard maple yields honey abundantly; in fact, I think it is equal to fruit-bloom for honey, and the honey is of better quality. But, of course, as the weather is usually unfavorable during the maple bloom there is comparatively little saved by the bees. I have never experimented as carefully as friend Doolittle; but this I know: We have no willow in bloom when the sugar-tree is in bloom, nor is there any other source where bees gather honey at that time, except dandelion, which did not bloom this year. So while the sugar-trees were in bloom the bees worked with a vim equal to fruit-bloom, and stored considerable honey, although the weather was very unfavorable most of the time during the two weeks they were in bloom, and the honey was of excellent quality.

We can not always compare our localities with others; as, for instance, I see reports from some localities that bees make considerable honey from the goldenrod. Now, two years ago I had a field of eight acres covered with it, and I never saw a bee on a goldenrod blossom in my life.

The season in this locality was a very poor one for honey last year. A great many of our bee-keepers did not get any honey at all. My report is as follows: 30 lbs. of comb honey per colony and two swarms. My best colony gave 50 lbs.

Farmington, W. Va. L. H. WILCOX.

I am inclined to agree with you, friend W., that the hard maple does at times yield considerable honey. Two or three years ago we had a season when the bees were filling the hives with new honey. So much of it was brought in, that, when we turned the combs over to look at the brood, the honey would run out on our clothing. It had the taste, somewhat, of maple syrup; and as the hard maples were just roaring with bees for many days, I decided the honey-flow came from them. Did you taste the honey, and see what it was like?

MRS. AXTELL ON FORMING NUCLEI.

The way I like best to make nuclei is this: Go to my blackest, or poorest and smallest colonies; take out all the combs and adhering bees, and carry to a new hive on a new location, two of which combs I set in the hive; then brush off the bees from the remaining combs into the hive. Now we know we have the queen, and enough of the bees will remain to care for the queen and brood well (as only a strong nucleus pays). Now carry back the other two or three combs to the old stand, and enough bees will return to care for them. If a colony is strong enough, three or more nuclei may be made of the one weak colony. I like to pick out my darkest hybrids or poorest-queened colonies, because I do not wish to raise drones from them. It is the easiest way to get them requeened. MRS. L. C. AXTELL.

Roseville, Ill., May 26, 1886.

HOW TO COOK CARP.

My husband has been getting some carp from a neighbor's pond, and they are almost as bony as the eastern "red horse," or suckers, and taste very much like them. A good many object to buying them, on account of the bones. As I like the flavor of them, I have tried various ways of cooking them. The best way for us is to bake them. We kill, and clean them thoroughly the day they are caught. They sometimes need washing six or seven times in clear water. Then let them stand in clear water all night. Wash them once again in the morning, and then cut off tails and fins, and pack them heads and tails; that is, as close as I can get them, and about two deep, in a baking-dish of some kind. I use a long dripper. As I pack I sprinkle a little salt and pepper inside them, then put in water until just even with the top of the fish; and if liked, a little nice meat-drippings or butter is added; then bake for two hours, or longer if desired. I do not add any more water, preferring to let them be about dry when done. When so prepared, the bones are nearly all as soft as those are in canned salmon, and they are much relished. If any are left I warm them up in hot lard and a little extra salt.

Los Alamos, Cal. MRS. J. HILTON.

DOES CHANGING THE INTERIOR OF THE HIVE PREVENT SWARMING?

I am a beginner in keeping bees, and I should like to run them without increase. I have been wondering if I could not do it in this way: After the swarm issues, put all the frames containing brood in lower story, with enough frames of foundation to fill up the lower story. Then put the frames containing honey in upper story, with frames of foundation to fill out the story. I could put a frame of foundation between frames of brood to change the interior of the hive, so that the bees would hardly know it was their old hive. After the upper story is filled, extract.

H. M. PARKER.

Plymouth, Richland Co., O., May 25, 1886.

Friend P., the plan you suggest will be nearly equivalent to reversing the brood-combs, as mentioned on another page by friend Alley; and my experience is, that sometimes it works, and, again, it does not work.

HONEY-DEW, ETC.

I sold 36 stands of bees last year and 3 this spring, and I have 22 on hand at this time, and will not sell any more until swarming is over. I lost none this winter. Bees have been doing well until the last two weeks, when we had a heavy frost that killed all the bloom; but they are coming out again. Last year, and year before last, I had swarms out by the 22d of March. They will be late this spring. They will surely go to swarming in a few days. I have not made any divisions yet, and I don't expect to.

When I get time I will write you a letter on the production of honey-dew, as I am satisfied that I have discovered it, and I should like for you to let me know if it has ever been satisfactorily settled as to what produces it.

J. A. ISAACKS.

Brownwood, Tex., May 1, 1886.

Friend I., I believe it has pretty generally been agreed upon, that honey-dew is the product of aphides, or some sort of insects. The idea that it falls from the air or clouds is too improbable to receive credence, without a very great amount of positive proof. If you have any thing new to offer on the subject, we shall be glad to receive it.

HOW SHALL WE SHIP OUR HONEY IN THE QUANTITY?

I do most terribly hate to peddle, so I offered one of our merchants here my whole prospective crop of extracted honey from 40 hives for 8 cts. per lb., and take it all in trade out of his store, he finding a market for it among his acquaintances in New York. He told me to-day, that after several days to think about it, if I would put it in tin pails of about 5 lbs., so that he could crate it and ship it to New York he would accept my proposition. He is hardly willing to take it in barrels. I can retail it from 10 to 12½ cts., a limited quantity, but I do so much like to dispose of a crop in bulk. I want to see what can be done.

FRANCIS TRUEBLOOD.

Archer, Fla., May 21, 1886.

CARNIOLANS IN CANADA.

I have to smile a little at your concluding remarks about Carniolan bees, on page 424. The bees produced by the Carniolan queen I got from J. H. Morrison last September are perfect hybrids in every respect, temper not excepted. Now, how are we to tell when we have pure Carniolans? The old-fashioned German bees have a grayish appearance, especially when they are young. Can it be possible that we are being imposed upon, and are getting back our old race of bees? I am feeling just a little sorry that I ever got any other race mixed with our Italians. Apple-trees are in full bloom yet, but the weather is so cool there is no honey secreted. The Syrians are terribly cross; but when we are opening hives we can soon tell where there is Italian blood.

ILA MICHENER.

Low Banks, Ontario, May 29, 1886.

CARNIOLANS AS WORKERS.

I am quite surprised at your article in June 15th No., in reference to Carniolan bees as workers. I have had Italians, Syrians, Cyprians, blacks, and hybrids, but I have never yet seen any honey-gatherers equal to the Carniolans I now have. My experience with the race as to gentleness is, that when the queens have mated with Carniolan drones we have the gentlest bees; but whether mated with Syrian, Italian, or black drones, the worker progeny is still gentle and lovely. I believe Dr. Tinker got a queen from me, mated with a Syrian drone; would he be kind enough to report quality of workers? I have never had any other queens so prolific. I see no trait about them but superiority in every way over any other race I know of. I think it is doubted that the colony you reported on is Carniolan. Didn't you report in GLEANINGS, soon after getting them, that you saw no difference between the workers of your queen marked "best," and Italians? Carniolans certainly have no yellow bands.

Oxford, Pa. S. W. MORRISON, M. D.

Friend, M., we were a little surprised to find a few worker-bees from our Carniolan queen yellow-banded; but they came from Frank Benton direct, and he would doubtless send us as good as he had, expecting, of course, we would report. Furthermore, if I am not mistaken, both Mr. Benton and other writers have admitted that a part of these bees are yellow-banded. When I saw this admission I was considerably inclined to feel vexed. Suppose we have the matter decided before we go any further, as to whether Carniolan workers should be yellow-banded or not. If they are not a pure breed at all, will it not be best to drop them right where they are? See letter above.

HOW EASY IT IS TO BE MISTAKEN.

A great many times friends write us that they ordered so and so, and yet they received something they didn't order at all. Now, where no copy of the order is kept, people are usually so positive the mistake is not theirs, I have been obliged to give the clerks particular directions to close up every letter of explanation by saying, "We can return you your letter, should you not think we are correct in the matter, if you so desire." Unless the above is added, there is pretty sure to be hard feelings, and sometimes hard words. The following kind letter illustrates the point:

You can not imagine how good I felt when I received back from you my letter of May 7th, 1886. After waiting, telegraphing, telephoning, and at last paying $1.30 for freight for the sections, it turns out after all that *I* am to blame for all of it. To say that I was vexed would be putting it in a very mild way. The reason I feel good *now* is because I did not scold you for all this trouble made by myself and for myself. Now, in future I will try to be more careful about what I say. But suppose *you* had made the mistake, as I firmly believed you had until you returned my letter, what would have been the result? My opinion is, that you would have made it all right. I have all the supplies that I need for this season; but when I need any thing in your line I will order. J. F. MICHAEL.

German, Darke Co., O., June 21, 1886.

I am sure, friend Michael, we are very much obliged indeed for your kind concluding words, and we will try hard to deserve them.

Moral.—When you make an order, always keep a copy, so as to be sure you are not mistaken when you feel like complaining that you didn't get what you ordered.

WHEN TO TAKE OFF HONEY.

I have one of your A B C books, and am pleased with it. Can you inform me where I can find a good market for section honey, and what it is worth per pound? I have fifty colonies of Italians, and they produce a very good yield, but honey is worth only, through this State, 10 cts. per lb. You mention in your book, that you always get 18 cts. for yours. Be kind enough to lend me a helping hand in this direction. How late in the season do you take honey? My plan is to remove from upper story, any time from the first of May to the middle of September, but never take any from the brood-chamber. Please give me your ideas on the subject. You don't mention this in your book. R. H. CAMPBELL.

Madison, Ga., June 19, 1886.

Why, friend C., we continue to take off honey as long as any comes; that is, I should take off every bit in the sections; and if they then lacked in the brood-chamber, when it came time to prepare them for winter I would feed. If you want your honey extra nice, take it off as fast as the sections are capped over. Every day they remain over the bees after this, spoils their appearance.

REPORTS ENCOURAGING.

"BEES DOING FIRST RATE."

BEES are doing first rate here, and white clover is in full bloom. Cultivated raspberries, blackberries, and tulip-trees, furnish lots of honey also. There is only one large tulip-tree within easy reach, but the bees carry in honey from that one an hour or two every morning. ALLEN LATHAM.

Lancaster, Mass., June 19, 1886.

NEBRASKA.

Bees are doing finely. We hope to get some surplus soon. We are in the midst of strawberry picking. We have the finest that go to our market.

Plattsmouth, Neb., June 9, 1886. W. J. HESSER.

WILL QUADRUPLE THE STOCK.

My wife is excited over her success with bees. Last year she tripled, and this year she will quadruple her stock (from appearances). They bred all winter; first swarm, May 22d; second, from same colony, June 5th, and will swarm again all round.

SAMUEL T. MALEHORN.

Denmark, Oregon, June 10, 1886.

HONEY NEVER BEFORE COMING IN SO FAST.

Bees are doing first rate now, but I am afraid of dry weather setting in that will cut off the clover. There is an abundance of it. I have taken 40 lbs. of comb honey from some of my hives, and there will be plenty more in a few days. I never saw them make honey so fast before in my life.

Millersburg, O., June 7, 1886. JACOB ETTER.

BEES AT "WORK IN SECTIONS STRONG."

Bees are doing remarkably well so far this season. We are having an excellent clover-bloom, and bees are at present gathering more honey from it than I remember of ever seeing before. They are at work in the sections strong, and are just beginning to swarm. I had two swarms to-day.

Williamsville, N. Y., June 22, 1886. E. C. LONG.

A GOOD REPORT FROM ONE OF OUR DOLLAR QUEENS, AND ONE, TOO, THAT DOES NOT SWARM.

I bought a dollar queen of you 4 years ago, and introduced her to a colony of blacks. In a short time I had a colony of pure Italians, and they are beauties too. They have given 87, 103, 108, and 97 pounds of honey each year respectively. What I want to know is, why they have never swarmed or even built a queen-cell. I know it is the same queen, for I clipped her wing a few days after introducing her, and saw her last on the 11th inst. Is it not strange that they do not swarm? I am very proud of her. C. A. LEWIS.

Peachville, Pa., June 14, 1886.

100 LBS. OF HONEY IN 5 DAYS FROM ONE SWARM; OWES SUCCESS TO THE A B C BOOK.

I have not written any thing for GLEANINGS for three years. Your reply at the end of my article was to let you hear from me again. This fall I will send you another report. I have made great strides in the art since I commenced, 7 years ago. I have had great success in getting honey, but not in wintering. Last year, 8 swarms averaged 200 lbs. of extracted honey apiece. One new prime swarm, hived on 24 empty combs, gathered over 100 lbs. in 5 days. I owe much of my success to what I learned in the A B C book. C. S. ADAMS.

Williamson, N. Y., June 20, 1886.

CLOVER TWO WEEKS EARLIER; THE SWARMING MANIA RAGING.

Bees are doing well. White clover commenced blooming May 10th, two weeks earlier than usual, and has furnished a good supply of nectar. Basswood is opening up now. Trees are full of buds; and if the weather is suitable we shall have a good honey-crop, which will be the first within three years. Our woods are full of runaway swarms. Persons keeping a few bees, and not paying close attention, have lost half of their swarms that have come out this season. We have lost three. Two first swarms came out and went to the woods without settling. One was followed three-fourths of a mile. There is something very singular about the swarming this year. We have had one swarm to come out five times. It was hived on brood and foundation. It would stay in the hive two or three days, work out some of the foundation, and then swarm out again. Others will stay in the hive a day, and not do any thing, and swarm again. My hives are well shaded, and the best of care given in hiving. Some swarms destroy all the larvæ given them, if rather young. J. NEBEL & SON.

High Hill, Mo., June 19, 1886.

OUR OWN APIARY.

DOOLITTLE'S PLAN OF FORMING NUCLEI, AS TRIED AT OUR APIARY.

EVER since Mr. Doolittle gave his plan of forming nuclei (p. 304, last year, and p. 401, current volume), I have had a great curiosity to know whether it would work successfully here. As our apiarists have been practicing artificial swarming, I told one of the boys to try Doolittle's plan, and I determined to put it severely to the test. I accordingly instructed him to take six different frames, with adhering bees, from as many different colonies, being careful that the queen was not on any of said frames. These in rotation, as fast as taken from the hives, were shaken over the tunnel, precipitating the bees into one of our 1½-lb. shipping wire-cloth cages. An effort was made to shake all the ragged-winged old bees into the cage, taking advantage of the fact that young bees adhere more closely to the combs. When the cage was filled it contained about a quarter of a pound of bees from six different colonies, making, by actual weight, a pound and a half of bees, a large part of which were old ragged-winged fellows. Among these were dropped a queen from a seventh colony, so that we had seven colonies represented in this cage of bees. We would naturally expect that these bees would be apt to quarrel—at any rate, kill the queen. According to directions, the bees were jumbled up considerably, and then placed in a cool dark place over night, to become acquainted with each other. Next morning they were put in a hive where previously had been put a frame of unsealed larvæ and a frame of honey, and two or three empty combs. I watched the bees narrowly, to see whether any would return to their old stands. At noon of the same day, on examining the hive I concluded that most of the bees were still there; but I failed to see many of the old ragged-winged bees. I then concluded that they had gone to their old locations.

At 7 P.M., on looking into said colony, I was gratified and surprised to find that those same old ragged-winged bees were all there, they having evidently at noon been out foraging, and at night were at home. Yes, those ragged-winged old fellows were scattered all through the hive, and the queen was in the center of a ring of bees, unharmed.

Now, if, by the ordinary way, these six frames of bees had been put directly together in some one hive, the old ragged wings would all have returned to their old locations. Isn't that so, friend D.? Besides, if the queen had been dropped right among them, as she was in the cage, she probably would have been killed. I don't know whether or not friend Doolittle has tried forming an artificial swarm from so many different colonies, but I felt sure that if it would stand this test, his plan ought to work successfully, as ordinarily practiced by him. I am aware that it involves considerable labor; but the point is, if I understand correctly, to make *all* the bees stay at their new location, and perform, as nearly as possible, the functions of a natural swarm.

Of course, I would not say that, because this one instance has proved successful, therefore the plan will always work. We shall try it again, and will report later. Well, suppose it will work successfully every time, will the consequent labor involved pay you for your trouble? This you will have to settle for yourselves. Mr. Doolittle has practiced it for a couple of years back, and I believe he still considers it the most economical way of forming nuclei or strengthening weak colonies. Mr. Fowls, of Oberlin, O., said he had met with good success by it, and thought it one of the valuable "kinks" to the trade.

WHAT FUEL IS BEST FOR SMOKERS? THE FUEL THAT WE NOW PREFER AT THE HOME OF THE HONEY-BEES.

Among some of the practical ideas in Mr. Heddon's "Success in Bee Culture" we find planer shavings mentioned by "my friend," and recommended by Mr. Heddon as being the best fuel for smokers. The boys tried this fuel, prepared in the way described; but while they met with fair success, the shavings burned out too quickly, and sometimes went out altogether. No doubt, with the Bingham smoker, this fuel will do all that is claimed by Mr. Heddon; but with the Clark, the *modus operandi*, by reason of the difference in draft, has to be varied somewhat.

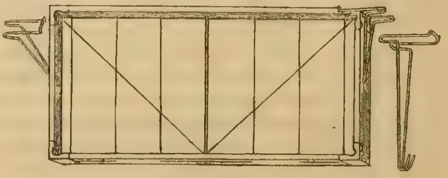
HOW TO MAKE THE CLARK SMOKER RUN FROM FOUR TO SEVEN HOURS IN THE APIARY WITHOUT REFILLING.

One of the boys then substituted, in place of the shavings, fine basswood sawdust; and, strange as it may seem, it gave excellent satisfaction, burning for a great length of time, and sending out a volume of smoke. The manner of filling is simply to put a few live coals over the grate (holding the nozzle downward), and then filling the fire-box level full with the fine basswood sawdust, such as comes from sawing sections. The smoker, as thus loaded, will last from four to seven hours, depending upon the amount of wind blowing. If the air is still, and the smoker is filled just right, it may be expected to run for a long time without refilling. We much prefer basswood sawdust to pine, as the latter is too apt to fill up the tube with tar. I suppose any hardwood sawdust will answer as well as the basswood.

The secret of the sawdust lasting so long rests in the fact that sawdust will smoulder for a great length of time, without going out. When our honey-house caught fire, something over a dozen years ago, we discovered that the fire originated from the sawdust packing holding fire for a whole day and night, and I believe other fires have been traceable to the same cause.

THE SIMPLICITY REVERSIBLE FRAMES.

We have tried a number of these frames, with excellent satisfaction. They reverse surprisingly easy, even when covered with propolis; and for general handling, the boys like them much better than the knife-edge metal corners. To hold a frame filled with honey by these metal corners, is sometimes a little uncomfortable to the fingers. These reversible wire corners are easy on the fingers, and at the same time possess all the good features of the old metal corners. For the benefit of our readers who may wish to see it, I here reproduce it.



THE SIMPLICITY REVERSIBLE FRAME.

The cut will, I think, make the principle plain. To reverse, the corner is slipped off, and is then revolved to the other corner, where it is slipped into place.

I must say, from my experience I am greatly pleased with the reversing principle. We have secured by it some as fine combs as I ever saw, the frames being filled out solid from bottom-bar to top-bar. Even with wired frames the bees will scarcely ever build the comb plump against the bottom-bar. Near the lower end of the comb the bees are apt to gnaw around the wires. Frames of this description have been reversed, and the combs then completely filled out in a day or so. If we continue to like this reversing principle, we shall use it entirely in the apiary. We already have quite a number in use. From the experience I have had I do not think I should like to reverse the whole hive; i. e., all the frames at once. On examining into a number of hives, I saw some combs which needed reversing, when, to reverse others in the same hive, would only result in harm—at least, so it seems to me. To reverse the frames singly is not a very long operation.

I should still advise the friends who have had no experience with them not to put too many reversing frames in the apiary at once. Although many like them at present, we may all decide adversely to them in time.

CARNIOLANS STILL LAGGING.

These bees are not doing much better. Although by all odds the strongest colony in the apiary, they have no more honey in their hive than ordinary Italian nuclei. Two of the frames of foundation which I told you about last issue have not yet been pulled out. Such a strong colony, in the space of two weeks, during the honey-flow, ought to have had the fdn. drawn out long before this. I will say to Dr. Morrison, that the bees in question are from a Carniolan queen which Benton called "very fine." There are only a few Italians among them. As we have been expecting them to swarm, we have attached to the entrance one of the Alley traps, both to catch the queen in case the swarm issues, and to catch all the drones, as we do not wish to have any of their blood in our apiary.

This morning the apiarist found a young virgin queen trying to pass the trap attached to the Carniolan swarm. She made repeated attempts to get through, but without success. The apiarist then took her away after the bees had balled her. This shows that even young queens can not pass the zinc, so that there is no doubt, when the Carniolan queen comes forth with the swarm, she will find that she is "left."

HURRAH FOR THE ALLEY TRAP.

Later.—This afternoon, at a quarter before four, while in the apiary I saw a big swarm in the air. Going directly to the Carniolan swarm I found the bees pouring out of this hive through the trap. Yes, sure enough, there was the queen in the upper apartment, where she had passed through the cone when she found herself unable to pass the perforated metal. The bees circled around in the air for about five minutes, when, finding their queen absent, they poured back into the hive through the trap amazingly quick. I had nothing to do but to watch them. It works about the same as clipping the queen's wings, with the exception that you do not have to hunt for the queen. The trap is automatic, and is, no doubt, a great saying of labor. If I had wished to put the swarm in another hive, all I should have had to do would have been to detach the trap from the hive and suspend it in the air. The bees would soon have clustered around their caged queen, and I could have put them wherever I pleased.

I would say, that we do not ordinarily allow swarming; but I had made the conditions favorable for the issue of this swarm for the express purpose of testing the trap. This invention of Mr. Alley's will prove a great boon to those who have apiaries located in different places, and where they have to hire expensive help to take care of the swarming. ERNEST.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

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MEDINA, JULY 1, 1886.

I am the light of the world.—JOHN 9. 5.

WE have, at this date, June 29, 5623 subscribers. We are also filling all orders almost the day they are received. If any one has been missed, let us know and we will fix it instantly.

MR. THOMAS HORN AND HIS BUSINESS.

WITH the number of complaints we are having, it is no longer possible for us to keep silent, although it is my opinion that Mr. Horn means to make every thing satisfactory with his customers, when he gets through with his great rush of orders. The only thing we can blame him for is, that he does not return the money promptly when his customers write that they prefer it instead of waiting longer. We wrote him that he must either return the money or make some explanation to his patrons, that we could publish, before this issue went out. In reply to this we get the following telegram:

> Can not attend to mail myself—orders are positive to return if not filled. If not, answer. Please write again letter to-day. THOS. HORN.
> Sherburne, N. Y., June 29, 1886.

SECRET SOCIETIES.

WITHOUT presuming to dictate, I feel it nevertheless my duty to say that, when my advice is asked, I do not hesitate to reply that I can not see any need at present of secret societies of any kind. Especially does it seem to me that one who professes to be a follower of the Lord Jesus Christ has no need of secrecy in this way. Jesus taught openly. I am well aware that many professors of religion are members of secret societies of different kinds. I know, also, that our young people, many of them, are members of secret societies that claim to have as their end and aim the furthering of the kingdom of God; but for all that, I feel a little sad and a little afraid when I hear that any young friend of mine has become a member of any of these. Our prayer-meetings are not only open and free to all, but every true Christian is always glad to welcome the presence of any human being, no matter what the color, sex, or social condition. If we are seeking first the kingdom of God and his righteousness, is there any need of secrecy anywhere in this wide universe? Shall we not so live that we shall never be afraid to have the all-seeing Eye look down into the innermost depths of our own hearts? and shall we not also so live that we need never fear to have human eyes look into the business of our lives, and even scan closely the work of our hands? "In secret have I said nothing," are the words of our Savior.

HAND-BOOKS ON RURAL INDUSTRIES, AND WHAT THEY SHOULD COST.

One of the things to rejoice about during this nineteenth century is the fact that almost every thing is taught in books; that is, a whole book is written in regard to potato culture, and another on cranberry culture, a third one on broom-corn, etc. Not only have we *poultry*-books, but we have a book written specially in regard to the *Light Brahmas;* and these text-books are a wonderful help in their respective lines of business. But what I want to protest against in this brief notice is, the fashion of advertising a "book," charging 25 or 50 cts. for it, and sending, in return, a brief *pamphlet* that should be sold for a nickel or a dime. Three books are now being advertised extensively in the agricultural papers, on celery culture. One is 25 cts.; the other two, 50 cts. each. Now, a book on celery culture is very much needed, and I have sent for every thing that has come out, just as soon as I saw it advertised. The 25-cent one is by J. N. Stearns, Kalamazoo, Mich. The title is, "Celery Culture." Said book has a cover 4×6 inches. Inside it are six leaves, 4×6 inches. One of the 12 pages is occupied by an advertisement of something foreign to the subject. The type is large and widely displayed. Every thing in the book would not make a single page of GLEANINGS, and yet it is advertised and sold for 25 cts. The other two, at 50 cts. each, are entitled respectively, "Kalamazoo Celery," and, "How to Grow Celery." One contains 23 pages; the other, 30; size of the books, 4½×7 inches. The matter is tolerably fair, what there is of it; but there is not a single illustration to explain the operations of celery culture, in any one of the books. Ten cents would, in my opinion, be an ample price for them. Of course, these books will be short-lived, and the sale of them limited. Instead of being treasured up as something of value, they will be torn up or lost, or go into the waste-paper basket in a week or two. It is true, they may be worth all they cost to many of the purchasers; but to my notion it is not *right*, and it is not *fair*. If the advertiser should, in his advertisement, say how large his "book" is, and tell the number of pages it contains, he would find hardly a purchaser. Large books are not needed on many of these subjects; but why can't we have something like a uniform price, even on industrial pamphlets? And why not call them so, instead of calling them *books?* Perhaps you urge that it would not pay; but I reply, it *will* pay a fair and reasonable profit to get out a good book, full of pictures, illustrating the subject, and sell it so as to furnish the purchaser, say a good-sized page (the size of GLEANINGS, for instance), at the rate of a cent a page, or not to exceed that price. Industrial hand-books can be furnished at the above figures, so as to pay reasonably well, I know, because I have tried it.

BOOK-REVIEW DEPARTMENT.

DOES IT TAKE TWENTY POUNDS OF HONEY TO MAKE ONE POUND OF WAX?

MR. P. L. VIALLON, Bayou Goula, La., criticises somewhat my conclusion in this department of May 15, as regards the original cost of wax, as adduced from the consequent consumption of honey. As he mentions some of our time-honored experimenters and writers who have given the matter some attention, I insert it below, that we may together consider what he has to say:

> *Mr. Ernest Root:*—In your book-review of May 15, you say: "From the fact that McLain's estimate of the cost of wax is backed by former experiments some years ago, it would seem that 20 lbs. of honey to 1 lb. of wax is very nearly correct." Don't you think that you are rather premature in coming to this conclusion, for McLain's estimate, based only on opinion, as far as I can see, is given as such? You also refer to the paper read by me at the convention in New Orleans, and say that I "gave as my opinion," etc. I think that it would have been better to say that I gave my modus operandi and the results of my experiments, etc. Now, as you have put me in evidence showing the great difference between Prof. McLain's opinion and the result of my experiments, which will, no doubt, cause critical reflections, and wishing to verify my experiments to a certain extent, I would call your attention to the experiments of Berlepsch and others in Europe; and among our prominent bee-keepers here, Mr. C. Dadant says about 10 lbs. of honey is required, basing his opinion on the amount of grain required to produce 1 lb. of fat in animals. If you read friend Doolittle's article in the *C. B. J.*, May 26, you will see that he says that it takes less than 5 lbs. of honey to make 1 lb. of wax, when bees are not confined, and have access to plenty of pollen and water from the fields, etc. If I am not mistaken, Mr. J. Heddon's estimate is not far from the above.
> P. L. VIALLON.
>
> Bayou Goula, La., June 3, 1886.

I am very glad, friend Viallon, that you have spoken so freely, if I do seem to be "waxed pretty bad;" but as nearly as I can discover, McLain *is* backed by former experimenters, and it was the most natural thing in the world to conclude that the old estimate was nearly correct. You say I ought to have given the results of your *experiments*. If you will look again, page 392, you will see that I did put it as the results of your experiments; namely, 7 lbs. of honey to 1 lb. of wax. From the reading of McLain's report I had supposed that the professor had arrived at his conclusions from experiments; quoting from his report we find the following: "Estimates can easily be furnished to prove that the production of every pound of wax costs the bee-keeper ten times the sum realized from its sale." I take it from this that he had made some experiments as regards the cost of wax.

On consulting several of the bee-books I find it seems to be presupposed that it takes from 15 to 25 lbs. of honey to make one pound of wax. Whether these data were obtained from actual experiment of the authors, I am not prepared to say. If the results of your experiments, friend Viallon, are correct, then these books need revising on this point.

As we have here on file all the bee-journals since started, I took a little search in some of them. Turning back to the *American Bee-Journal* of 1861, Vol. I., page 88, we find there recorded the experiments of Gundelach and of Baron Berlepsch. In the second paragraph we find: "Gundelach made some minute and careful experiments, the details of which are given in the 'Natural History of the Honey-Bee,' and the results showed that about 20 lbs. of honey were used by the bees in producing a pound of wax." Again, in the third paragraph occurs the following: "A similar experment" (referring to the one just quoted) "with like results was made by the Baron of Berlepsch. In a subsequent experiment he allowed the bees free access to pollen, and ascertained that, in such case, 13 lbs. of honey (exclusive of the pollen consumed) sufficed to produce a pound of wax." The above are verbatim quotations. Remember we are not talking about the amount of *pollen* and honey required for a pound of wax, but *honey* alone. The pollen in the last experiment probably accounts largely for the difference in results.

In the same article, further on, we find: "Again, Count Stosch, taking the second experiment of the Baron of Berlepsch as the basis of his estimate, thinks due allowance should be made for the time spent in comb-building by the bees, and which, if devoted to honey-gathering, would have enabled them to store up 20 lbs. Hence, he concludes that, with the actual consumption and the necessary allowance for time and labor, the cost of a pound of wax is fully equivalent to 30 lbs. of honey."

If I am correct, the foregoing extracts refer to the German friends Mr. Viallon has in mind, but I do not see that the "results" of their experiments particularly favor him, but rather verify what Prof. McLain has said. If our German experimenters have made any more recent experiments, the results of which are radically different, I should be glad to be informed of it.

Mr. Dadant is quoted as saying 10 lbs. of honey only are required for one pound of wax. As he obtains this estimate from the quantity of grain required to make a pound of fat, it seems to me this estimate bears the force of only an assumption. The fat of animals and the wax of bees may be similar, but I do not see how the proportion can hold true, if we reason that corn is to fat as honey is to wax, which, when sifted down, amounts to about that. It may approach the truth, but not accurately, or, at least, so it seems to me.

Mr. Doolittle is mentioned as saying in the *C. B. J.*, page 166, that only 5 pounds of honey is required for 1 pound of wax; but, observe, he gives it as his *opinion*. He states the reasons for his belief, but using Viallon's terms, not the *modus operandi* or the results of his experiments, strictly speaking.

Now, friends, while I confess I had just a "leetle" desire to talk back to friend Viallon, it is not my purpose in making these extracts and allusions from some of our prominent writers to show by their use that the results of Viallon's experiments were incorrect, or that Doolittle was wrong in his belief; but to show from various sources, so far as I was able, the result of previous investigation upon the one point of the *original* cost of wax. Indeed, I would regard it as presumption to take issue with some of the old writers who have long been in the field. My object is to call forth a settlement of this "wax question," if possible, as proven by a series of careful and impartial experiments of the present time. Wax has now become one of the staple articles of commerce, and I regard it highly important that bee-keepers know pretty nearly what it will cost them to produce it when honey is of slow sale. If it can be produced at a cost below the market prices, then surely we ought to know it. Several have inquired whether they could produce and sell wax at a profit. Perhaps with the knowledge of what has been done we can prove that the original cost of wax is considerably lower than the old estimate. Strange as it may seem, I sincerely hope it may be demonstrated, for it would develop a new income for the bee-keeper; and it is quite probable that, as Mr. Doolittle suggests, when the bees have access to open air we may arrive at quite different results.

ERNEST.

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Address GEO. M. WERTZ,
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WANTED.—To buy for cash, from 100 to 500 pieces, either pine, poplar, or basswood, 7 feet long, 3½ inches wide, 1⅜ inches thick, planed all over, with a rabbet taken from one corner 1¼ inches by ½ inch. Who can furnish them? 12-13d
THOS. W. CROACHER, New Bedford, Mass.

WANTED.—To sell, after June 1st, 50 3-frame L. size nucleus colonies of hybrid bees, with queens, for $3.50 each, delivered at Plattsmouth, Neb., or I will exchange for young stock, cattle or horses, or apiarian supplies.
12tfdb J. M. YOUNG, Rock Bluff, Cass Co., Neb.

WANTED.—To sell or exchange a farm, 160 acres; good buildings, good soil, good title. All under fence. For sale at a fair price. Address 12tfdb
W. B. BROWN, Spirit Lake, Dickinson Co., Ia.

WANTED.—To exchange Gale plow, square harrow, subsoil plow, double lead harness, riding-saddle, horse-clippers; also a Stevens 44 rifle and 12-gauge shot-gun combined, for Barnes saw, hives in flat, or offers. Goods shipped from Philadelphia, Pa.
12-13d H. M. HIESPELL, Paola, Fla.

WANTED.—To exchange five full-blood Scotch shepherd pups for $5.00 in cash each, or six warranted Italian queens. Stock warranted full, and satisfaction guaranteed. Address
13d T. J. PENICK, Williston, Fayette Co., Tenn.

WANTED.—To exchange Italian bees in three-frame nucleus with queen, at $3.50 each, for fdn., brood size, 8x16½. Also young queens at $1.00 each. 13-14d M. ISBELL, Norwich, N. Y.

WANTED.—To exchange Italian and hybrid bees for pure beeswax comb fdn., Wyandotte, Brown Leghorn, and Plymouth Rock chickens, or offers.
A. E. WOODWARD, Groom's Corners,
13d Saratoga Co., N. Y.

FOR SALE or exchange, White English Rabbits, choice stock very low, now; also P. ducks and poultry cuts for sale cheap.
13-14d O. L. COVER, Covington, Ohio.

WANTED.—To exchange bees in Root's Simp. or chaff hives, or a saw-table with $7.00 mandrel, suitable for power, for a Barnes foot-power circular saw, or will sell cheap for cash.
13-16db M. LUDTMAN, Hannibal, Monroe Co., Ohio.

FOR SALE.—Italian Bees and brood. Queens bred from imported mothers. Or I will exchange for supplies at a bargain.
13tfdb C. F. UHL, Millersburg, Ohio.

WANTED.—To exchange even Rose-comb Brown Leghorn cockerels, April hatch, standard birds, for Italian queens or comb foundation. Price $1.00 here. 13d W. M. JANES, Paris, Tenn.

LOOK HERE! To any one wishing to purchase nice Italian bees I will furnish them, during the month of July, for 50 cts. per pound. Tested queens, $1.00 each; all queens reared from cells built under the swarming impulse. In all cases, cash must accompany order.
13-14 A. G. BRUSH, Susquehanna, Pa.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I will sell 30 hybrid queens in July, at 25 cts. each. Insure safe delivery, and that queens are layers.
JOHN S. SARGENT, Hutton, Coles Co., Ill.

I can furnish some mismated queens at 50 cents apiece. A. M. SAWDEY, Poolville, N. Y.

I have a few nice hybrids for 25c each, and a few rather small, untested and tested, for 40c. All are warranted to be good queens.
C. WECKESSER, Marshallville, O.

I have 10 good hybrid queens that I will sell for 25 cents apiece. O. E. HEACOCK, Volusia, Fla.

Prolific hybrid queens for sale, at 40c each.
WM. BARTH & BRO., Petersburg,
Mahoning Co., O.

I have several black queens at 15c; hybrids, 35c, to sell for neighbors—10 or 12 in all.
JNO. C. CAPEHART, St. Albans, W. Va.

UNTESTED CARNIOLANS.

I have about 50 Carniolan queens of last season's raising, fertilized by Italian drones, producing the gentlest bees and best honey-gatherers I have ever had, and a few of their daughters, untested, procured by natural swarming, which I will send by mail, and guarantee safe arrival, for 50 cts. each.
S. W. MORRISON, M. D., Oxford, Chester Co., Pa.

DO YOU EAT CANDY?

Send $1.25, and I will express 5 lbs. of Todd's Honey Candies, same as made a sensation at last Pennsylvania State Fair. Remember, every pound sold helps the honey-trade. Special rates for quantities for fairs. Dadant Foundation always in stock at market prices. Bees, Queens, Hives, Smokers. Vol. I of Frank Cheshire's new book mailed free, $2 50.
914db ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.

ITALIAN * QUEENS.

Very choice tested, $2.00 | Choice untested, $1.00
Circular free. WALT S. POUDER,
13tfdb Groesbeck, Hamilton Co., Ohio.

QUEENS.

I have them, bred from a best selected queen of Root's importation, 90 cts. each; 6 for $4.50. I can give all orders immediate attention, and ship by return mail. Send postal for dozen rates.
10tfdb **B. T. BLEASDALE,**
596 Woodland Ave., Cleveland, Ohio.

ITALIAN QUEENS. Untested, 85c.; six, $4.50. Tested, $1.50. Write for price list of bees, fdn., etc.
13-15db JNO. NEBEL & SON, High Hill, Mo.

QUEENS AT REDUCED PRICES.

As money is scarce, I will sell my warranted queens at $8.00 a dozen, or 2 dozen for $15.00.
13d J. T. WILSON, Nicholasville, Ky.

ITALIAN BEES FOR SALE.

7 strong colonies in Kidder hives; frames 10¾x11¾ inches, at only $5.00 per colony. Address
13-14d W. J. HILLMAN, Green River, Wind. Co., Vt.

By Return Mail.

Select tested queens, each,	$1 50
Warranted queens, "	75
" " per doz.,	8 00
Strong 3-frame nuclei, L. frames, each,	2 50

Address **JAMES WOOD,**
12-15db **No. Prescott, Mass.**

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JOB LOT OF WIRE CLOTH

AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1½ CTS. PER SQUARE FT.

These prices are good only when you take a full roll. If you order less than a roll we charge 2c. per sq. ft. Sometimes the roll you order is gone before your order reaches us, in which case we send the next largest roll, unless it is a great deal larger.

SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED.

This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and cages for shipping bees; making sieves for sifting seeds, etc.

Inches Wide.	No. of Rolls.	Number of Square Feet contained in each Roll Respectively.
36	59	21 rolls of 217, 37 of 216, 2 of 215 s. f.
28	2	2 rolls of 233 s. f.
38	27	23 rolls of 316, 2 of 317, 1 each of 632, and 285 s. f.
48	1	1 roll of 400 s. f.

FIRST QUALITY WIRE CLOTH AT 1¾ CTS. PER SQUARE FT.

The following is first quality, and is worth 1¾ cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1¾ cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

Inches Wide.	
24	39 rolls of 200 sq. ft. each.
26	55 rolls of 216 sq. ft. each; 1 each of 199, 195, 201, 200, 227, 204 sq. ft.
28	71 rolls of 233, 10 of 224, 6 of 222 sq. ft.; 1 each of 257 sq. ft.
30	25 rolls of 250 sq. ft.
32	13 of 266, 4 of 256, 1 of 275 sq. ft.
34	25 rolls of 283 sq. ft. each, 1 of 198 sq. ft.
36	15 rolls of 300 sq. ft. each; 1 of 288 square ft.
38	1 roll each of 300 and 316 sq. ft.
46	1 roll of 192 square feet.

A. I. ROOT, Medina, Ohio.

NORTHERN-GROWN QUEENS.

If you think them hardier, send me an order for queens, warranted pure Italians, bright colored. Any one buying five queens, I will send him one pair of standard W. L. chicks free. Price of queens, $1.25; price of chicks, $2.00 a pair.

C. A. DEARBORN,
14-16db Hudson, St. Croix Co., Wis.

ONE-DOLLAR QUEENS.

I will give you a printed guarantee of purity of every untested queen sent at $1 each before Sept. 15.
14 16db J. B. HAINS, Bedford, Cuyahoga Co , O.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Owing to the writer's absence from business on account of sickness, we have not been able to furnish quotations of late in regard to the honey market. In future we shall be glad to quote regularly as usual. We quote: There is considerable old comb honey in market yet, for which there is but little demand at prices ranging from 8@10c for a fair grade of white-clover honey. Buckwheat unsalable. Our market is stocked with California extracted honey, which sells at 5@6c per lb. New Southern strained is coming to market quite fast, and is sold at from 50@55c per gallon.

Beeswax.—A good run of yellow, at from 22@24c per lb.
THURBER, WHYLAND & CO.,
July 3, 1886. Reade and Hudson Sts.,
New York, N. Y.

MILWAUKEE.—*Honey.*—The supply of honey is much better, both in quantity and quality. The new is very nice indeed. The demand is not large. We will quote white choice 1-lb. sections, 16@17; white choice large sections, 15@16; dark, nominal, 10@15; extracted, in tin, white choice, 7@9; extracted, in bbls. and kegs, 6@7. *Beeswax*, 24@25.
June 29, 1886. A. V. BISHOP,
142 W. Water St., Milwaukee, Wis.

DETROIT.—*Honey.*—New honey is coming in quite freely, and is bringing from 11@13c. The quality is generally better than for years. *Besswax* firm at 25.
July 12, 1886. M. H. HUNT,
Bell Branch, Mich.

FOR SALE.—About 400 lbs. of extracted honey.
EDWIN STUBB, Wakefield, Lancaster Co., Pa.

FOR SALE.—6000 lbs white-clover honey, at 6½c in bbls. of 555 lbs., or in 100-lb. kegs, at 7c. Satisfaction guaranteed. Honey thick and well ripened.
ROBT. QUINN, Shellsburg, Iowa.

WANTED.—To buy from 200 to 500 lbs. new white-clover honey in 1-lb. sections. References furnished. Address C. H. OSBORN, JR.,
Cor. 5th Ave. and Hunter St., Columbus, Ohio.

WANTED.—A few hundred lbs. of A No. 1 extracted honey, delivered here, at 7c per lb. Write stating quality and conditions, and I will give shipping directions. D. S. HALL, So. Cabot, Vt.

CIRCULARS RECEIVED.

The following have sent us their price lists:

J. W. H. Fisher, Franklin Mills, Pa., Albino and Italian queens and bees.

B. Walker & Co., Capac, Mich., 4-page circular of apiarian supplies. One-piece sections and reversible hives a specialty.

S. Valentine & Sons, Hagerstown, Md., 6-page supplement, the Success hive; also apiarian supplies.

CONVENTION NOTICES.

The Illinois Central Bee-keepers' Association will hold its next meeting at Mt. Sterling, Ill., on Tuesday and Wednesday, Oct. 19 and 20.
J. M. HAMBAUGH, Sec.

The St. Joseph Inter-State Bee-keepers' Association will hold its annual meeting on Wednesday eve of Exposition week, Sept. 1. Programme later.
E. T. ABBOTT, Sec.

COLONY in 10-frame hive, $5.00; tested queens, $1.50; untested queens, 75 cts.; 2-frame nucleus, $1.50; 3-frame nucleus, $2.00 (no queen). I have Italian bees; size of above frame, $9\frac{1}{8}$x$17\frac{5}{8}$.
OTTO KLEINOW, Detroit, Mich., (Opp. Fort Wayne Gate).

CRYSTAL FRUIT-JARS CHEAP.

SELF-SEALING. BEST QUALITY.

1-pint jars, per gross,	$10 00
1-quart " " "	12 00
½-gallon " " "	15 00

HONEY-JARS AND SUPPLIES.

TYGARD SONS, - 2119 S. JANE ST.,
14-15d **PITTSBURG, PA.**

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

Batchelder's Drone and Queen Trap

Is the only one made that does not hinder the bees in their work. Send 85 cents for sample. Send for circular, and see what A. I. Root says about it.
10tfdb **J. A. BATCHELDER, Keene, N. H.**

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

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REDUCTION IN PRICES.

We hereby notify our customers that there is a reduction in foundation from the prices quoted in our *March* retail price list. All parties interested will please mail us a card for new prices.

CHAS. DADANT & SON,
11tfdb **Hamilton, Hancock Co., Ill.**

Italian Queens sent by Mail.

Untested queens from imported mother, April, $1.25; May, June, and July, $1.00. After April, per half-dozen, $5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

Foundation-Mill For Sale.

One ten-inch Root comb-mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $15.00. The list price of a new mill of this kind is $20.00. **A. I. ROOT, Medina, O.**

CARNIOLAN QUEENS.

Having located an apiary of this new race of bees in an isolated place, surrounded by high mountains, where a honey-bee was never seen until we placed these there, we have two of the finest queens Mr. Benton could furnish to breed from, and can furnish queens of undoubted purity at the following prices:

June 1,	Queen,	$3 50;	½ dozen, - - - - $18 00
July 1,	"	3 00;	" " - - - - - 15 00
Aug. 1,	"	2 50;	" " - - - - - 12 00
Sept. 1,	"	2 25;	" " - - - - 10 50

ITALIAN ❊ QUEENS

of the best strains, bred in a separate apiary, 40 miles distant, warranted purely mated:

June 1,	Queen,	$1 00;	½ dozen, - - - - $5 00
July 1,	"	1 00;	" " - - - - - 5 00
Aug. 1,	"	1 00;	" " - - - - - 4 50

Address **J. B. MASON & SONS,**
12tfdb MECHANIC FALLS, ME.

---

600 LBS. OF BEES ON HAND YET.

Bees, $1.00; queens, black or hybrid, when I have them, 35 cents. Queens raised from imported mothers, after July 1, 65 cts. by mail; 50 cts., with 1 lb. of bees by express, charges paid by me, as in May.

THOMAS GEDYE,
12tfdb **La Salle, La Salle Co., Ill.**

FOR SALE AT COST.

200 1½-story Simplicity hives in flat; 40,000 one-piece one-pound sections; 75,000 one-piece 2-lb. sections, size 5¼x6; 10,000 brood-frames, V-shape; 5,000 broad frames for sections; 200 1½-story Simplicity hives, nailed and painted.

Address R. L. SHOEMAKER,
12-14d Newcomerstown, Tuscarawas Co., O.

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary, **SUPPLIES**

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd **Hartford, Washington Co., Wis.**

LEWIS V-GROOVE

ONE-PIECE SECTIONS

Down, Down, Goes the Price.

First Quality, White Basswood, One-Pound Sections, In lots of 500 to 3000, $4.00 per 1000.

SPECIAL FREIGHT RATES.

If 3000 or more are wanted, write for special prices, delivered to you, freight paid by us.

C. B. LEWIS & CO., 9tfdb
April 15, 1886. **Watertown, Wisconsin.**

QUEENS UNEXCELLED.

From Mr. Benton's best imported mothers, very low. Send for circular to
8tfdb S. F. REED, N. Dorchester, N. H.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.R.Whiting

Vol. XIV. JULY 15, 1886. No. 14.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18c per year extra. To all countries NOT of the U. P. U., 42c per year extra.

RAGWEED, MAYWEED, SMARTWEED, ET AL., VERSUS SWEET CLOVER.

IS SWEET CLOVER A BAD WEED?

MR. C. FAUST, of Harvard, Ill., desires that I should give in GLEANINGS the facts in regard to the character of melilot, or sweet clover. He says in his region it has been planted largely along the roadsides, but it is being cut by the farmers, as they refuse to let it grow and seed, for fear it will become a serious pest in their meadows and cultivated fields. Mr. F. adds, that it is this beautiful plant with its rich product of superior honey, or else ragweed and mayweed, which he feels sure are important factors in the production of "hay fever." I have no knowledge in reference to the part ragweed and mayweed play in the production of hay fever; but I have raised sweet clover now every year at the college for several years, and I feel certain of the following points:

1. Sweet clover is a very excellent honey-plant; 2. It is very beautiful, both from its rich fine foliage and graceful sweet-scented blossoms. Surely ragweed, mayweed, smartweed, etc., bear no comparison to it as an adornment to the highway; 3. It is not bad to spread at this place. We rarely find it starting at any considerable distance from our beds; and when it does start in meadow or pasture it rarely holds on, being choked out by our cultivated grasses; 4. When once started it is no difficult matter at all to get rid of it. As is well known, this clover is a biennial, and grows from seed flowering the second year. Thus by cutting while in bloom, or before the seeds mature, we shall quickly extirpate it. It can not remain longer than two years after such cutting, as it must come from seed every other year.

So I am free to urge the farmers of Illinois and other States to foster rather than destroy this plant. They will thus adorn the roadsides, and will also aid to foster and develop an important industry.

At this writing our beds of sweet clover—melilot (*melilotus alba*) are in full bloom, and it is hard to say which is more attractive to the bees—this or the basswoods, which are also in full bloom.

Agricultural College, Mich. A. J. COOK.

Friend Cook, I agree with you exactly. Sweet clover has been on our grounds several years. In fact, we had half an acre at one time, and the seed was hardly ever gathered, and hence it came up so thickly it could not grow. For about one year it was a little troublesome. Since then it has entirely disappeared. None of it is found on our grounds at all, unless it is an occasional shoot that comes up among the strawberries and in such places. It is true, they are a little hard to pull; but after a soaking rain they will come up as well as docks, or other kinds of clover. Now, while it is true that it doesn't hold its own in cultivated fields, it is also true that sweet clover will grow in any kind of hard yellow clay right by the roadsides, or on barren hills. Dr. C. C. Miller, as you will remember, suggested as a reason for this (see page 441), that it seems to endure any kind of treatment or hard usage. On that account it gets a hold along the roadsides when it is not found elsewhere. Bee-keepers have been accused of sowing the seeds along the roadsides about Medina; but I don't think any bee-keeper would take the pains to do so. It simply got a start along the roadsides, and has been following along year after year. I do not know that I ever saw a patch of it anywhere in cultivated fields, and I never knew it to do any hurt.

CANADA THISTLES.

Now, while I am on this subject I want to say that we have recently found a patch of real genuine Canada thistles on our grounds. They were first found close to the fence on the opposite side of the road from our county fair-ground; and the supposition is, that somebody unpacked some goods, or fed his horses some hay up against our fence, and this hay contained the thistle-seed. They are scattered for a rod along the road under the fence, and had got, perhaps, ten or twelve feet over into our field. The minute I found them I dug up every plant visible; but in ten days after, although we have not had a drop of rain, they are coming up as thick as spatter. Sometimes a new strong plant will be found fully six feet further out in the field than any other had been before. It looks as if it might make a power of trouble; but I rather like the fun of trying my hand on such a foe. Will some one who has had experience tell me how long it will live if I chop up the plants every ten days all summer long? The roots seem to run in the ground like moles; but the question is, How long will the roots live if they don't have a chance to make leaves?

MARKETING COMB HONEY.

HEDDON'S METHOD.

IN your foot-notes at the close of my article, page 542, on "Getting Bees out of Sections," you request me to follow up the sections to market, and I will gladly comply with that request; for my experience in the matter, together with conversation with commission men, has convinced me that it is a serious mistake to send honey to market in the same cases or crates it was stored in, on the hives.

On page 854 of GLEANINGS for 1885 is illustrated and described the shipping-crate of my own invention and choice. In this crate, friends Hutchinson and Taylor market their fine comb honey, and in it they have carried off the liberal premiums offered for best display of comb honey, by the Michigan State Agricultural Society, ever since it offered them. I might further state, that the honey was in 4¼ × 7-to-the-foot, 4-piece, dovetailed, white-poplar sections, and stored in my non-separator case. Now, do you think any person could have successfully competed for these premiums by showing ever so nice comb honey in the same crates the bees built it?

Our honey-house is a large airy room, made and kept as neat and clean as a dwelling-house. From the screen-house, mentioned on page 542, 1886, we carry the storing-cases to the honey-house, piling them up crosswise, that the air may freely circulate through them. As soon as we need the cases, and spare time admits, we invert them on our honey-table, push out the sections in a minute, and, holding them over a box, with the point of a medium-sized blade of a pocket-knife we scrape all the glue from their edges and place them in the shipping-crate above referred to. The glue being now quite cool, readily lets go the wood. With a little practice the apiarist will hold the blade between thumb and finger in such a manner as to rarely, if ever, mar a capping, and will do the work very quickly.

Once, in conversation with R. A. Burnett, of Chicago, who handles large quantities of comb honey, after telling him how much time it required to clean and crate the sections, he said that the difference in price and attractiveness would pay us enormous wages for the labor performed; one or two dollars per hour would be a low estimate, I think.

We now pile our crates up in the honey-house, keeping them there any length of time we desire, never having any trouble from worms, fermentation, nor granulation, if not kept all winter without fire. These little crates cost less, and look much more attractive, than storing-cases. As stated in my article on page 854, 1885, these small crates ship safer, and sell more readily. They also cost less than storing-cases. A dealer who has once handled honey in these crates will be loath to receive it in cases as it comes from the bees. For convenience, let us agree to call storing-cases *cases*, and shipping-crates, *crates*.

REVERSING.

I have been interested in reading Ernest's apiary reports on page 550 and 551. Yes, sir; he is right; reversing has come to stay. If he will experiment on a comprehensive scale with my all-wood reversing device he will like it, I think, much better than the Simplicity, shown in the cut. It is not attachable to old frames, I admit; but I feel sure it is much the best when constructing new ones. We have had considerable practice in reversing the whole hive at once; so has Mr. J. M. Shuck, of Desmoines, Ia., and I believe that neither of us have as yet observed any detrimental effect whatever from such reversal.

Referring to page 537, 1886, I would say to Mr. Ritter that we can not practice his modification of modern transferring, for our bees usually have brood in spring, before they fly; but we have several times performed it in autumn, after brooding had ceased, as mentioned by the editor in his foot-notes.

Referring to page 536, on "Preventing Increase," it is quite easy to see why Mr. Robbins failed of success, while Mr. Hutchinson, myself, and others, have never met with failure. JAMES HEDDON.

Dowagiac, Mich., July 5, 1886.

Thank you, friend H. You have given us just exactly what I wanted you to give; and even if some of the matter has been given us before, it comes now right connectedly, and in practical shape, and in just the season when we are ready to use it. I know something about the difference it makes in having the sections clean. Our boys on the wagon told us a short time ago that there were calls for honey, made this year. I remarked, that it would not make much difference whether it were new or old, but we would try to give them some just from the hives. The first lot we got hold of was nice, white, clear honey, but it was darkened by being left on the hive too long, and some of it was stored in sections that had been on the hives the year before. It did not sell a bit better than the old honey. Finally one of our progressive young men from a neighboring town brought in some new honey in new white cases; in fact, the stuff for the cases hadn't been a week out of our saw-room, probably. The sections were so clean and white that one might suppose it hadn't been a week since they left the buzz-saw. He wanted 15 cts. a pound for it. I paid it, although I gave only 12 cts. for the former lot. Well, this clean nice bright comb honey is selling at a good rate for 18 cts. per lb. We just put the case right on the wagon, and the appearance of the honey sells it right along. I might add, there is not a bit of propolis visible anywhere. While I think of it, friend H., perhaps I should also add that neighbor Chase, the young man who brought us the honey, is using surplus-arrangements like or similar to those you used a year ago.

BORAGE AS A HONEY-PLANT.

A GOOD REPORT FROM IT.

I SHOULD like to say a few words in praise of what I think to be one of our best honey-plants; i. e., borage. I got enough seed from you last year to plant about ½ acre, but sowed it rather late. However, the bees worked on it until late in November. I did not save the seed, but let it seed itself. It commenced to bloom about the 1st of May, and the bees (mostly blacks and hybrids) have been just *swarming* on it ever since, even during poplar and white clover. The remarkable part about borage is, the bees work on it after a heavy shower. The head of the flower, as you know, hangs down, and the rain does not wash out the honey. I wish to put in a large crop of it next season. We have had a great deal of rain here of late, and the bees are getting a very clear, sweet honey, very much like sugar and water. I send you a small sample. Can you tell me what it is? I have also noticed some of my honey capped over with yellow wax, as described by J. W. Porter, in June GLEANINGS, p. 480. Italians will utilize wax when they have access to it; and as I had left some fdn. in an old Palace hive, and saw them at work on it, I accounted for it in that way. Am I right?

R. R. CUYLER.

Rapid Ann, Va., June 27, 1886.

I am glad to get so good a report from our old friend borage. We have raised it a good many years, but we have such a very large number of bees working on a small plat of ground that it is difficult to tell how much honey the plant furnishes, or any thing about it. The sample of honey you send is very nice. I will explain to our readers, that it is just about right to drink. The flavor is a little different from any thing I have ever tasted in the way of honey, but I should call it fully equal to clover, so far as I can judge from any thing so much diluted. It is probably borage honey, just as it is gathered. During a very wet season I once had some clover and basswood honey almost as thin as this. It would run out of the combs when they were turned up in taking them out of the hives. If removed by the extractor in this condition it will quickly sour; but if left until the bees seal it up after their own fashion, it will be nice thick honey. I should be glad of more reports from borage. It is very easily raised, and, as you say, may be put in quite late. It self-sows, so that, if the seed is not gathered, it may prove to be a troublesome weed; but not more so, however, than buckwheat or other similar plants.

EMPTY BROOD-NESTS.

NEW SWARMS—EXTRACTED HONEY.

YES, friend Root, I have tried working new swarms for extracted honey, and I see no difference in regard to whether the *brood-chamber* shall be furnished with combs or fdn., or the bees allowed to build their own *brood*-combs. You say: "Of course, this condition of affairs refers to comb honey. When one is working for extracted honey, by all means give them empty combs." Yes, I would give them empty combs, but *not in the brood-nest*. I would furnish the frames in the brood-chamber with starters of fdn., put on a queen-excluding honey-board, then a super filled with empty combs; or, if I had no combs, I would fill the frames in the super with fdn. The principle of allowing the bees to build the combs in the brood-chamber, and furnishing comb or fdn. in the supers, is a broad one, and it really makes no difference whether the honey in the super is to be extracted, or whether the combs of honey are removed in the shape of pound sections. Just stop and think a moment, friend R., and see if you can't "catch on."

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich., June, 1886.

I confess, friend H., I don't "catch on" exactly; but I begin to suspect that bees will store more honey if they are permitted to indulge their passion for comb-building to a certain extent than if they are given so many combs they have no room to build new combs at all. D. A. Jones says, "We are fully convinced that full frames where extracted honey is taken is a decided advantage."

HOW TO RAISE CELERY.

FRIEND A. T. COOK GIVES US A PLAN BY WHICH EVERY FAMILY WHO OWNS A PATCH OF POTATOES MAY RAISE CELERY.

THE potatoes, when plowed and well hilled up, will leave just the trench required for the celery-plants. Stir some fine fertilizer in the soil and set out the plants, six inches apart in the rows, pressing the soil firmly about the plants. Set every other row with celery, and this will leave abundance of room for earthing it up after the potatoes are removed.

After setting the plants, water well; and then with a rake draw the potato-tops over the rows of celery to shade them from the hot sun. After a couple of weeks turn the potato-tops back; and by the time the celery needs earthing up, the potatoes will be ready to dig; after which the celery may be plowed and hilled up in the usual manner. I raise celery in this way with half the time and trouble of any other plan. I am unable to see that either crop interferes at all with the other—indeed, the potatoes, as a shade for the young plants, are a great advantage.

FRIEND COOK'S METHOD OF REMOVING POTATO-BUGS.

It may not be out of place to tell my way of catching potato-bugs. I never use poison. I put a large bale, made of a barrel-hoop, on a common tin pan and then fasten a pasteboard, 8 or 10 inches wide, on one side of the pan, reaching half way around. This prevents the bugs from flying over when I brush them in. I use a brush made of broom corn, which does not injure the vines; and if bugs are plentiful I go over the vines every other day. A. T. COOK.

Clinton Hollow, N. Y.

"BEES AND BEE-KEEPING."

A REVIEW OF THE SAME BY PROF. COOK.

IT is only from lack of time that I have delayed reviewing this excellent work, the first half of which has now been in the hands of bee-keepers for some weeks. This part of the work is wholly scientific, and is very thorough and complete. I can hardly describe the interest and pleasure I have derived from its careful study. This is not lessened by the fact that its criticisms of my own work seem rather harsh. When I am wrong I am only too glad to be corrected; and if, in my intensely busy life, I have at times been too hasty or less careful than I ought to be, it may be well that I should receive even a sharp reminder. Of the six or seven points criticised, two were corrected before I saw this work; and if the other criticisms are found, upon examination, to be well grounded, as will very likely prove true, I shall certainly profit by them. As Mr. C. says, I drew largely from Hyatt's monagraph. He has done the same, yet he does not even hint that I differed totally from Hyatt in the structure of the ligula and the process of taking nectar, or that I was first to give the description which he substantially follows. When I first read Mr. Cheshire's article on the cause of foul brood, and noted how he spoke of the German scientists who had discovered the cause of the malady, I wondered that so good a scientist could mar his work by such unkind references, especially as his own work is largely compilation, though he has given us much which is new. This latter, if correct, as it doubtless is, in the main, gives us great reason to thank him.

In this review I shall speak only of some of the most interesting points of the work, suggesting that, while it is rather technical in places, for the unscientific reader, no live bee-keeper can read and study it without great benefit.

Mr. Cheshire is a skillful microscopist, and it is in this field that he has done the principal, original work. It is generally known by scientists that larval bees, no less than the larvæ of other insects, shed their skins. The author shows just how and where these discarded garments are tucked away. I have found that these shreds of the rejected skins of bumble-bee larvæ are managed in similar fashion. It is stated that the cocoons extend but a short distance from the outer end of the cells, and that Huber was wrong in stating that those of queens were much less extensive than those of the other larvæ.

No part of the work is more interesting than that describing the glands of the mature bees. He calls attention to the three pairs of glands, two in the head and one in the thorax, which were pointed out by Siebold; also the flask-shaped gland at the base of the mandible, which is beautifully illustrated by Wolff in his admirable monagraph. Mr. Cheshire argues, and with no small show of reason, that one pair of these glands of the head secretes the most of the food of the larval workers, nearly all of that of the larval queens, and the most—all of the nitrogenous food of the queen. The fact that this gland is absent in the queen and drones surely gives strong support to the view, as does the fact that the gland seems more active in young than in old bees. It is argued, that the other glands are digestive in function, and probably serve to convert the cane sugar of nectar into the reduced sugar of honey. Here Mr. Cheshire makes a strange error, in the statement that our saliva is wholly a digestive liquid; that it changes starch into sugar. It is well established, that our saliva is almost wholly mechanical in its function, and that the pancreatic juice digests the starch; though I think we can hardly doubt Mr. Cheshire's proposition, that this secretion of bees is digestive in its action.

In commenting upon the fact that the queen is probably fed, when she is actively engaged in laying, upon the rich secretion which affects the rapid development of larval bees, it is estimated that the queen lays eggs to double her own weight each day. Surely, she needs good food, and to have it well prepared. Fancy a hen laying from twelve to twenty pounds of eggs a day! Is it possible that we may secure such fowls by taking hint from the bees, and preparing a rich diet already suited for assimilation? If so, we must remember that nature has been very slow in developing her marvels, and we must copy her and not hurry.

The description of the alimentary canal is very full, and as full of interest. The explanation of the stomach-mouth of Burmeister, and its valvular and separating functions, will be read with much interest. This method of separating pollen from honey shows how skillful nature is in her operations, and explains why honey has so much less pollen in it than does the nectar from which it is derived. It is shown that the intestine of bees serves as a gizzard; and the suggestion is made that the intestinal teeth serve the purpose to break or cut the still undigested pollen grains.

The part of the work treating of the mouth parts will be read with no small interest by the bee-keeper who loves science. Mr. Cheshire thinks the peculiar tongue-structure, which, if I mistake not, I was the first to correctly describe and illustrate (see fig. 22, Manual) serves the purpose of cleaning out pollen grains which may find lodgment in the central slitted rod, or plicated membrane, uniting edge of rod and edge of outer case. Thus the bee has no need of a toothpick, as the evolution of the tongue itself serves to clean it.

No part of this work will be studied more profitably than the description of the antennæ. The histology of these organs is well portrayed, both by words and figures. Mr. C. contends, with much show of reason, that these complicated and very useful organs serve not alone for touch, but also for hearing and smelling.

The legs are fully described and illustrated, and their complex and wonderful structure explained, as also the function of each part. It is suggested that the jaw-like arrangement between the basal tarsus and tibia serves as pincers to grasp and carry the wax scales from wax-basket to mouth. The claws and pulvilli are also described, and their purpose to hold on is correctly stated; but that this is new is certainly wide of the mark.

The structure of the sting, and the way it is used, is well given, and is substantially the same as given by Hyatt.

I have not space here to more than refer to the wonderful description of the spermatheca, and the manner in which eggs are impregnated, or passed unimpregnated, at the will of the queen.

This, with other parts of the work, show the author to be an expert with the microscope, which fact, combined with a skillful pencil, makes the treatise of great value.

The last part of the work, showing how useful bees are to plants, is most opportune just at this time. The author has selected wisely from Darwin's great work on this subject, and has given graphic examples of the value of bees to fruit-growers. The work is beautifully executed, and is certainly a great credit to its author, and a most valuable acquisition to bee-literature. It is to be regretted that its price is so great—$5.00 for the entire work, $2.50 for each volume—as this will keep it from the libraries of a great many who would otherwise secure it. Yet it is hard to see how it could cost less. A. J. COOK.

Agricultural College, Mich., July, 1886.

Thanks, friend Cook, for your kind and deserved notice of this valuable work. I am pleased to see, also, how well you "stand fire," if I may be allowed the expression. So long as we are all human, and liable to err, especially when we try to search out the depths of natural history, why should we not have a very wide charity for each other? Of course, a good deal of the above is beyond my depth; but may I be excused for venturing to criticise both you and friend Cheshire on one point? You know it has often been said that a queen will lay eggs enough to equal her own weight in 24 hours; but it seems to me that this is surely a mistake, and I want to inquire if you have at the Agricultural College a pair of scales equal to the task of weighing a queen's egg, or, if you choose, 100 or 200 eggs. Suppose we grant that a queen may lay 3000 eggs in a day, will these eggs weigh any thing near as much as the queen herself, say at a time when she is not laying eggs? A great part of my life has been spent with small scales—those for weighing gold and silver. From the experience I have had I can not think that the above statement is correct. One of the poultry-journals a short time ago suggested that it was next to impossible for a common fowl to eat and digest food enough every day to produce an egg; that the way she managed it was to accumulate flesh before she commenced laying; and when this accumulation had disappeared she was obliged to take another rest. Well, there is a "biddy" down at our poultry-house that has laid an egg every day since last February; that is, if she has missed a day I have not noticed it. She was quite a small fowl when she commenced to lay, and I should say she had increased in size fully a third while she has been laying. So this upsets the point made in the poultry-journal. Perhaps I should add, however, that the eggs laid are remarkably small—so small they would hardly answer for market. The hen is a cross between Plymouth Rock and Leghorn. She was hatched so late in the fall that she was probably stunted in growth during winter. She takes enough food to furnish material for an egg every day, and something more, which makes me look at her in amazement quite often. Now, then, can a queen, even with thousands of attendants using their digestive apparatus to help her along in her work of egg-producing (by giving food in the most concentrated and fully digested shape possible), produce eggs enough *in one day* to weigh as much as she does? It may be true, but I should like to see it proven. When it is I will take off my hat and make my best bow to a queen-bee, in token of the great wonders the inmates of a bee-hive are capable of performing.

GETTING BEES OUT OF SECTIONS.

THE WAY FRIEND DOOLITTLE MANAGES IT.

I NOTICED George A. Wright's question on page 393, regarding getting bees out of sections, and it would have been answered sooner, only for pressure of business. As I have very little time at my command I will tell, as briefly as possible, just how I manage; and as July is our great honey month here at the North, it will be in good time for all those whose surplus is obtained from basswood or fall flowers. All have noticed that the bees have passageways, or holes, in each of the four corners of nearly every section—so much so that these holes come as near being a matter of fact as any one thing connected with bee culture. Now, it will be seen that, in our plans of later years, these sections are so placed upon the hive that these holes in the corners make one straight hole right through from one side of our case, or clamp, of sections to the other, nearly or quite as straight as if bored with a ⅝ auger. This, I think, I have made plain to all. Then all know that, if smoke is suddenly poured into a bee-hive without any jar or disturbing beforehand, the very first thing the bees will do is to run as far from the smoke as possible, inside the limits of the hive, without stopping for any thing. As soon as such limits are reached they will take to their honey, for they will not leave the hive without taking a load of honey with them for a new start in life. Taking advantage of these two facts I carefully lift the cover to the hive, and just as carefully remove one of the little side boards from my section case, or clamp, of wide frames, blowing a little smoke upon the bees on the face side of the sections, and, as quickly as possible, hold the nozzle of the smoker to the first of those holes at the upper corner of the sections, beginning on either the right or left hand side as it comes handiest. I now give two puffs of smoke into that hole, working the smoker for all it is worth, so as to send a stream of smoke as deep into the sections as possible. Then the nozzle is placed at the next hole, and the next, and the next, in quick succession, till two puffs of smoke have been driven as far as possible into each hole. I now quickly take off the little board on the opposite side of the clamp, and as thoroughly drive the smoke to the heart of the section-case from the other side. Now I wait a moment, giving the bees the necessary time to flee from the smoke, when the sections are suddenly taken from the hive with scarcely a bee upon them, if I have done the work as it should be done. Immediately after, a reaction will take place, especially where a small brood-chamber is used, and the bees come boiling up over the frames, and, if the sections are not off, up into the sections, when all the smoke we can use will not drive them so but that they will fill themselves. In this way I get off my sections free from bees, and never, as a rule, get holes gnawed through the capping of the cells as I used to before I learned how to do it. In times of scarcity of honey in the fields, the bees will sometimes stick to the lower portion of unsealed sections; but as these are not marketable, no especial harm is done. However, it is a rare case that all do not go out. The only secret there is to it is to know the right time to take off the sections; just that moment when all the bees are out, and before any return. A little practice will secure the reader that secret.

Borodino, N. Y., June, 1886. G. M. DOOLITTLE.

We have tried the same thing, friend D., but we did not all succeed as well as you state, on account of this same reaction; that is, after the bees had all gone out of the sections with a roar they came trooping back again before we got round to taking off the case of sections. With the suggestion you give us, however, I think now I can manage it; but we want our honey-crates so they will lift right up without any prying or snapping. Heddon's sink honey-board will probably help in this direction.

A BEE-SMOKER THAT USES NO FIRE.

OUR ENGLISH FRIENDS TAKING THE LEAD.

AMONG the advertisements in the *British Bee Journal* for June 24th we see advertised Webster's fumigator. The advertisement states that it entirely supersedes the smoker—no going out, as no fire is used; no tainting the honey. The agent used is carbolic acid, oil of tar, and water, properly mixed. The proprietor advertises a bottle of the mixture—enough to last two seasons—for 6 pence. He also says the instrument can be adjusted by any novice to any ordinary smoker-bellows. We judge from the advertisement that the agent is placed in a sponge. By means of a fumigator, the air is made to pass twice over the sponge, so as to be thoroughly impregnated. An arrangement is also used to prevent evaporation of the liquid when not in use. Our friends may remember that this subject has been discussed and experimented on before, although I believe none of us have thought of using carbolic acid. We ordered a fumigator and extra bottles of the agent, and will report in due time. We do not notice any thing in the reading-columns in regard to the invention, but it seems to me it promises to make a great revolution in the smoker-business. I, for one, protest against any patents, especially among our American friends. Let each one experiment freely as much as he chooses. Among the testimonials we do not find the names of any we know, except Frank Cheshire, and from him only this brief note:

> I find, by experiment, that the most vicious of Eastern bees are utterly beaten at once.

WHY DID THE QUEEN MENTIONED ON P. 485 STOP LAYING?

A CORRECTION.

ON page 485 David Strang asks, "Why did the queen suddenly stop laying?" I do not think she had ever begun. He says, "I released her from a cell partly destroyed by a rival, and introduced her to an artificial colony, formed about 12 hours before, of frames and bees from three or four colonies. She was accepted, and a week later had nearly four frames full of eggs and young brood," etc. Then four days later, not an egg or an unsealed larva could be found in the hive. In the first place, a queen will never, as far as I have observed, have 4 frames filled with either eggs or larvæ in seven days from the time she is hatched. I have raised a great many queens, and I never had one mated in less than five days after hatching, and it is generally seven or eight; then it is from three to five days after they mate before they begin to lay.

The eggs and larvæ that he found in the hive were probably in the combs when he put them in the hive. The reason that the eggs had not hatched into larvæ was because, it being a made-up colony, the old bees had all gone back, leaving only the young bees, and there was not sufficient heat to hatch the eggs that were not under the cluster. The reason he did not find them later was, that they had sealed over what brood had hatched, and eaten up or carried out the eggs that would not hatch.

THE SCARCITY OF CLOVER IN BOURBON COUNTY, KANSAS.

Bees are doing better here this season than I ever knew them to do in this part of Kansas. There is no white clover here. I do not think all the white clover in this county would make a good stand on a half-acre; but I have three or four acres of alsike sown this spring, and it looks well; but there seems to be a good natural supply of honey. From 18 stands in the spring I have extracted 640 lbs., and increased by natural swarming and dividing to 30, and the best part of the honey season is to come yet. There are a great many bees kept in this part of the State, but nearly all in box hives.

A FEW OLD FOGIES STILL LEFT.

I went to see a man last week who has 45 stands in boxes. He says he doesn't want any new-fangled patent gums. I told him there was no patent on them, but that didn't make any difference. He wouldn't give his old box gums for all the patent hives that ever were made; and when he wants honey he takes his sulphur-pot and kills the bees and destroys the brood and combs; but he is wise in his own conceit, and I could not tell him any thing. He was an old man, and had kept bees for over fifty years, and knew all about them.

JOSEPH C. BALCH.

Bronson, Bourbon Co., Kansas, June 26, 1886.

Friend B., I think you are right, and I beg pardon for having omitted to note that friend Strang, in his statement, said it was only a week after the queen was hatched that she had her frames full of eggs and young brood. I have frequently noticed that the eggs would remain in the combs several days, where, for some reason or other, bees did not nurse them nor care for them.

DO QUEENS WITH CLIPPED WINGS FLY?

HOW MUCH OF THE WING SHOULD BE CLIPPED?

I HAVE been reading GLEANINGS since April 1st, and some sample copies before that, but I am not familiar with what has and what has not been discussed in the past years; therefore if I tread over ground which has been trodden before, you will please excuse me.

Some time before swarming time, my brother and I went over our bees and clipped the wings of all the queens which had not been clipped before that, so we thought we need not be afraid of any swarms getting away. My brother George and I are partners in the bee-business, while my brother John has a few colonies independent of ours. A few days ago we were all three in the apiary, cutting the queen-cells out from a colony which had cast a swarm, so there would be no after-swarms. Suddenly John exclaimed, "There they go!" I looked around and saw a swarm issuing from a colony which had a clipped queen. I went to the hive, took off the cover, and picked up a queen-cage which I had placed on the enameled cloth some time before, and commenced looking for the queen, in front of the hive. We all three looked for awhile; and when we could not see her we proceeded to look inside of the hive. But we loooked in vain. By this time the bees had settled on a peach-tree some fifty or sixty feet away, and seemed very well contented.

"Well," said I to my brothers, "the way those bees sit there, they must have a queen with them; so I think we had better cut the limb and carry them to the hive, instead of putting them in a new hive on the old stand," as we had been practicing. I was somewhat puzzled at their capers, as I knew the queen's wings were clipped, and I also knew they could not have raised a young one, as I had been examining them quite often. We thought the queen might have got lost in the grass, so, after putting three frames of brood in the hive, one containing a sealed queen-cell from our choice queen, and filling the rest of the hive with empty frames, and closing it, we shook the bees in front of the hive, when they marched in very much as if they had a queen, and in a short time they were at work.

When looking in the hive the next day we found the queen-cell torn down. "Well," said I, "queens with clipped wings can surely fly." We did not see her then; but a few days later we found eggs, and after looking for her awhile we saw the old lady, evidently very well satisfied with her new home. Her wings were clipped, but not short enough. Now this, I suppose, is known to all veterans, and therefore may not be interesting for them to read; but there may be more young apiarists, like myself, who would suppose that a small portion of the wings clipped off is sufficient. To those, I would say, if you don't want your queens to fly, clip off nearly or quite half. Had we waited for the bees to return, thinking that the queen was lost in the grass, I think we should have been badly disappointed about the time the scouts returned. If the bees had no queen, would they have remained in the hive with the brood and queen-cell? S. E. MILLER.

Bluffton, Montgomery Co., Mo., June 18, 1886.

I think, friend M., if you will clip *one* wing it will do more to prevent the queen from flying than if you clip both; but instead of cutting the wing square off, run the scissors so as to take the thin gauzy portion, and leave the hard rib. It seems to hurt the queen more to cut this hard rib than to cut the web part; and this thin gauzy web is the part that does the flying. Of course, she can flop her drum-sticks to her heart's content; but so long as it does not help her to get up in the air, we have no objections.—Bees will remain contentedly without a queen, providing they have unsealed larvæ; otherwise they will generally desert.

BEE BOTANY,

OR, HONEY - PLANTS TO BE NAMED.

LIPPIA LYCIOIDES.

BY this mail I send you specimens, for naming, of a shrub which is probably the most valuable bee-plant in this portion of the State; height, 6 to 10 feet; delicate white flowers in spikes; highly aromatic; blooms from April till July, if seasonable, and after each heavy rain until the hard frosts in December. In fact, under favorable circumstances it is a perpetual bloomer. It is quite plentiful in this locality, and I am told that in some places it predominates. The honey is very excellent and abundant; but as it comes at the same time of mesquite, mint, and other flowers, it is difficult to keep the honey separate.

San Antonio, Tex. T. F. MCCAMANT.

Prof. Devol replies as follows:

The plant is *Lippia lycioides*, Gray, a member of the Verbena family. It is not described in the text-books of botany, but may be found in Gray's Synoptical Flora of N. America, Vol. 2, p. 338.

Columbus, O., June 7, 1886. W. S. DEVOL.

ANDROMEDA.

I send a few specimens of what is here called sugar plant, full of honey, but too deep for common bees to reach. Can Italians use it? It is plentiful hereabouts. W. V. SPENCER.

Prof. Devol says of it:

The plant from W. V. Spencer appears to be *Andromeda nitida*, Barto. I know no common name for it. It is a beautiful shrub, common in the low pine barrens of the Southern States. Some of the species of *Andromeda* are poisonous to sheep when eaten; but whether this one is, I can not say.

W. S. DEVOL.

CHINQUAPIN.

I send you a sample of what we call chinquapin. It is a great honey-plant. Please let us know its name. C. C. KIRKMAN.

Coxville, Pitt Co., N. C., May 29, 1885.

Prof. Devol says:

The inclosed plant is chinquapin (*Castanea pumila*, Michx.). W. S. DEVOL.

SWEET CICELY.

Seeing in GLEANINGS that you give the name of herbs and plants, I send one to name. I send you some of the stalk, leaves, and roots. W. W. GIGER.

Heltonville, Lawrence Co., Ind., June 9, 1886.

Prof. Cook's reply:

This is sweet cicely (*Osmorrhiza longistylis*). The name, from the Greek, means "scented root." The root not only smells sweet, but tastes not unpleasant. It belongs to the Umbellifera, or Parsley family. While the plants of this family secrete nectar, I do not think they possess any special excellence as honey-plants. This sweet cicely is common, north.

Agricultural College, Mich. A. J. COOK.

THE WORST BEES I EVER SAW.

ARE THEY CYPRIANS?

TO-DAY I had business inside a certain hive of bees that sits over there under that old mulberry, you know; and as I was lifting off the cover, not another provocation, mind you, said bees came in such "a rolling out, tumbling out, any way to get out," style from the entrance, that I was for a time dumbfounded. In a very short time I considered it not only my bounden duty, but to my best interests, to remove hastily from the situation; nor did I stand upon the order of my going. They covered me from head to foot, stinging my clothing all the while, nor could I get them removed till I had passed through four rooms; and through these rooms they sounded like bees swarming. On account of a good veil I received only three stings, and those upon my arms. I verily believe I should have been stung to death had I not worn a veil. I have as gentle bees as anybody else; but I wear a veil in handling queen-rearing colonies and in some other work.

Now, the above queen I know not where I got her; but I never suspected having such vindictive bees in my yard till this attack—a new queen whose second batch of progeny has just begun to work. In many ways they are the most remarkable bees I ever saw. The queen keeps *ten frames full* of brood, and I mean ten frames filled clear out—a most beautiful bee, large, and they work in and out with a rush, when my best pure Italians and Carniolans are plodding along, waiting for "something to turn up."

Now, I have "removed" this queen, and am introducing another, as I want no such bees. Who wants her for 35 cents? Bees are two and three banded. Don't say they are *hybrids*, for I have *them*, and never saw any to half equal these. Oh, yes! my wife says, "Don't forget to tell GLEANINGS about those bees stinging the chickens." Three or four little chicks are wabbling around from being stung by them. JOHN C. CAPEHART.

St. Albans, W. Va., June 26, 1886.

HOW FALSE REPORTS OF HONEY AND OTHER THINGS GAIN CREDENCE.

THE SUPERSTITION OF THE CHINESE.

DEAR FRIEND ROOT:—Reading in GLEANINGS recently the remark in regard to the alleged manufacture of spurious honey, that, "in view of the wonderful achievements of science it is no wonder that men believe that the nicest comb honey can be imitated," awakens a sympathetic feeling in my mind. The Chinese, when once they begin to get acquainted with our Western inventions, soon get clear beyond their depth, and don't know what to believe and what not to believe. I once saw a blind woman who had come two days' journey, where traveling was very expensive, to have the foreign doctor insert a pair of dog's eyes in her head. She heard that he could; and why not as well believe that as to believe that he could send a message through a hundred miles of iron wire?

There is one thing which has given us a good deal of annoyance at Shau-wu, our interior station. Not being ready to credit us with the benevolence which we profess, the Chinese must invent some theory to account for our readiness to come so far and spend so much money. Now, this old nation of China has passed through many revolutions and commotions, and so, from time to time, rich men have buried their treasures in the earth, and many of these have never been recovered. The theory commonly held among the people at Shau-wu is, that we have come to search for treasure. Somehow the story has been started that we can see three or four feet into the ground; and as we go about preaching and bookselling they claim that we go about peering into the ground for treasure. Once I was sitting on a ferry-boat watching the little fishes sport in the water while I waited for the boat to cross the river. A man eyed me curiously for a while and then asked of my Chinese helper, "What, can he see into the water? I have heard it said that foreigners can not see into water, but can see into the ground, just as we can not see into the ground but can see into the water." You see, they have the idea that we are opposite to them in most things, and they don't know how far to carry it. So far as concerns any superior skill we may possess, the unwillingness of human nature to acknowledge inferiority acts as a check on exaggerated notions of our powers; but when it comes to those things wherein we differ from them, they rather like to exaggerate, and make themselves believe that we depart in strange and unnatural ways from the true type of humanity, of which they, of course, are the grand embodiment.

One thing in regard to which they are strenuous, and think themselves better than other races, is the proper seclusion and subordination of women. The Christian treatment of women is something which they fail to comprehend. They seem to regard it as a part of the curious tendency to invert every thing which they think characterizes the "outside" nations, and so men must be subordinate to women with us.

To-day I sat chatting with a crowd in a shop opposite one of our chapels, where the gospel has been preached regularly for many years. One of them said to me, "With you the women control every thing, do they not?" I replied, "No: with us, husband and wife consult together on all their affairs. The husband is the stronger, and if he choose to impose on his wife she would have to bear it. But we consider it disgraceful for the strong to impose on the weak; and a man who ill treats his wife would be ashamed to show his face."

Another man inquired, "With you the women 'seek' the men and 'call' them to be their husbands, do they not?" I answered, "No, indeed. With us it would be thought disgraceful for a woman to seek a man in marriage."

Seldom do I converse with a crowd of Chinese but that I have to answer these questions; and all this in or near the city of Foochow, where missionaries have lived and toiled for forty years.

At our Shau-wu station we were troubled for a time with a worse slander. In the beginning of our work there it was reported that we bought children, and even sometimes women, and killed them, and made them up into medicine. The Chinese think that strength and vigor can be imparted by eating the bones, vitals, etc., of strong animals. The carcass of a full-grown tiger will sell for a hundred dollars or more; and I have seen men peddling tigers' skeletons at so much per ounce, for a tonic. But these, while very good, would not be equal, they think, to the human article, if any one cared or dared to prepare it. I have heard of Chinese soldiers even forcing themselves to eat the liver of an enemy killed in battle, to increase their courage, for they think the liver is the seat of courage.

A distinguished Chinese statesman and general who died last year is said to have lost a son in the following manner: This son had a piece of flesh cut from his arm to make a tonic for his mother, and bled to death in consequence; so there were those who affirmed that the peculiar potency of our foreign medicines is due to the use of human vitals in their preparation. This scandal, however, did not gain sufficient currency to make us serious trouble. There were a few Foochow women in the neighborhood, of bold manner, who came to see the foreign women, and brought numbers of the more timid women with them; and they were always shown all over the house, up stairs and down. By and by the wife of a beloved native helper, who had grown worse as her husband had grown better, had to be divorced. Her relatives made a big row about it; but it gave the finishing stroke to the medicine slander. It showed, also, that the wife of a Christian could not sin against her husband with the same impunity that a Chinaman could sin against his wife.

The truth slowly gains ground. The Chinese have long admitted that Western nations excel in the mechanical arts, but they have comforted themselves with the belief that they themselves excelled in manners and morals. Now the painful, humbling idea begins to press them that the followers of Christ excel in these things also; and their boasted Confucius must yield to a GREATER ONE. We try to make them understand that Jesus is not a Western sage, but the divine Savior from heaven who does for us what no sage can do; and that we are come hither, not to humiliate them, but to save them.

Foochow, China, May 4, 1886. J. E. WALKER.

CLIPPING QUEENS' WINGS 1900 YEARS AGO.

A TASTE OF VIRGIL.

I HAVE been clipping my queens' wings to control swarming. I got the idea from your A B C book, and, with some few draw-backs, it is good. I think I clipped the wings of some old queens, and they died off and left the swarm queenless. But what bothers me is, that you bee-men began the habit only of late years, since the improved frame hives have been in use; and I find, on reading Book IV. of the Georgics of Virgil, that the Italians used to clip their queen-bees' wings for the safe-keeping of a restless swarm. I quote a translation of his original Latin, from the 103d to the 108th verse, inclusive:

"But when the roving swarms fly about and sport in the air, disdain their hives, and leave their habitations cold, you will restrain their unsettled minds from their vain play; nor is there great difficulty in restraining them; do you but clip the wings of their *kings* ("*tu regibus alas eripe*"), not one will dare, while they (their kings) stay behind, to fly aloft, or pluck up the standard from the camp."

How did they, in his day, 1900 years ago, get at the queens to clip their wings, unless they had movable frames?

I feel compensated in thinking over the fact that he knew all that before we did, only in the other fact that the old poet did not know they were *queens* and not *kings*. JAMES J. SLADE.

Columbus, Ga., June 18, 1886.

If I render correctly from the Latin which you quote, Virgil does not recommend to *clip* the king's wings, but to *tear* the wings from off the king. The Latin word "*eripio*," of which "*eripe*" is the imperative, never means, so far as I can ascertain, to clip or cut, etc. However, the rendering which you give probably best conveys the idea to bee-keepers of the present day. At any rate, Virgil recognized the fact 1900 years ago, that crippling the queens' wings prevented, to a large extent, swarms leaving altogether. I think that Virgil meant that the bee-keepers of his day should catch the queen in the cluster after her bees had swarmed. This, then, would not necessarily imply that the Romans had movable-frame hives.—Many thanks for calling our attention to this matter of bee-history. Perhaps friend Hasty can give us another dish of Virgil upon this matter. ERNEST.

THE TENT FOR CATCHING SWARMS.

HOW MRS. AXTELL MANAGES.

DEAR FRIEND ROOT:—I want to tell your readers, especially the ladies who don't like to and can't well climb trees for bees, what a nice and convenient arrangement a mosquito-bar tent (referred to before in GLEANINGS) is to bring back virgin swarms—even the mosquito bar without the frame, as I have but one frame, and I use several cloths, or, rather, several tent-covers.

When bees begin to swarm, even if half are out, I set the tent over the hive; and if the bees are half out, the remaining ones make such a roaring that it calls those on the wing back every time. When all are out the hive that care to come, I lift the tent off to one side and open the hive; cut out cells in brood, etc. The bees outside of the tent and on the wing swoop down on to the combs. When the hive is closed I take off the netting by turning it wrong side out, as many of the bees stick to the cloth, and I shake them in front of the hive, and then the work is done.

If swarms from hives having clipped queens start to issue, and I have a swarm on the wing, I throw a tent or tent-cover over the hive, and kneel down close to the netting and look through and catch the queen and cage her, letting the swarm come and cluster on the tent-bars or to the projecting ends of the cover of the hive.

I have always very much dreaded my virgin swarms, as I take nearly the whole care of one apiary, numbering now 95 strong colonies and about 20 nuclei and weaker ones, and Mr. Axtell has the care of the apiary located near the timber, 4 miles away. I feel very thankful for the tent arrangement to catch the virgin swarms. I could not handle bees successfully, I fear, except the queens' wings were clipped, though I feel confident we sometimes lose a queen by doing so. One of those queens you sent was a beauty, and was successfully introduced on to hatching brood by brushing the bees down in front of hive and letting all old ones return. I left her caged over night, and released her on the brood. In a week I found the hive full of eggs, and a nice little colony. I clipped her wing. The bees had become old enough by this time to show their black spunk, and scamper like a flock of sheep. I then concluded I would never again choose black brood and bees for a choice queen, but my gentlest Italians. We had a few colonies that were very dark hybrids, and I wanted to get rid of them on account of being so hard to handle, and so poor honey-gatherers poor years, but they do make most beautiful honey, and carry it above, leaving the brood-nest for the queen. For those two traits I like them better than Italians in good years, as the present has been so far; but we have had no rain for some time, or but little, and the honey harvest may close early. Some colonies have given in from 50 to 100 lbs.

The Heddon slatted honey-board is a splendid arrangement to keep the sections clean; we use it both above and below the rack with a cloth over it above the rack, if the cover does not fit down closely. MRS. L. C. AXTELL.

Roseville, Ill., June 23, 1886.

HOW SHALL I MAKE MY BEES WORK IN THE SECTIONS?

A SPEEDY WAY OF GETTING RID OF THE FALSE IDEA THAT HONEY IS ADULTERATED.

I HAVE two colonies I wintered over. They came through in good shape. Each have 10 frames full (L. hive), from bottom to top with brood and honey, and the hive is almost full of bees. I have caps on with two crates each, holding 14 lbs. The bees will not go up and work in them. What is the cause? They seem to be busy on white clover and basswood, and there is an abundance of both. I put some half-filled sections in caps, which I had left over from last year. I thought perhaps it would induce them to commence in the caps. I looked next day and the cap was full of bees. I thought I should soon have two crates full of nice white honey. I looked again, four or five days afterward, and, to my surprise, I found no bees. On examination I found no honey in the section I put in. They had carried it all below, and have done nothing of any account since.

The basswood is now just in its full bloom, and white clover has begun to dry up. If they do not fill the caps pretty soon I shall not get any honey this season. How can I put them at work in the caps?

WHEN IS THE BEST TIME TO MOVE BEES?

I bought four first swarms. They came off the 21st, 22d, and 26th of May. They have filled ten frames full. I never saw bees build up faster in my life; but when they got up to the caps they stopped; nevertheless, they seem to be working very hard.

I commenced last season with three hives. I let a man have them to keep on shares. I will move them home this fall or winter. When is the best time to move them? If I move them before they go into winter quarters, will they go back to the old stand? I have to move them about an eighth of a mile. When I go to pack them up for winter, and it comes a warm spell so they fly, won't they go right back to their summer stand?

THE EFFECT OF THE FALSE STATEMENTS, AND WHAT TO DO.

I was talking with one of our leading merchants the other day in regard to the honey market. Said he, "I sold many a pound of honey for 50 cts. years ago." I asked him why it was he could not sell it now for half the former price.

"Oh! this *patent* honey has ruined the honey-trade."

"Patent honey?" said I.

"Yes," said he; "why, just up here at a little town between here and Indianapolis they are making nice comb honey. They make the comb by machinery, and then fill it with this patent honey, and cap it up and sell it for pure honey."

I asked him if he knew that to be a fact. He said, "Yes, sir; I see no reason to doubt it; Mr. B. told me so."

Now, Mr. Root, I made him this proposition: If he would show me the factory that made this patent comb honey, as he said they did, I would give him $100; and on top of that I would give him $100 for every pound they had on hand. He said he thought I would find it pretty expensive. I told him I would do just as I said. Do you believe I am safe? I agree with him in one respect; that is, the patent honey has helped to reduce the price of our product. There are people who would buy our honey if it were not for that notion of patent honey. I believe when we get that out of the way we can sell our honey at a better price, and find a more ready sale for it. What say you? J. M. TUCKER.

Clinton Falls, Ind., June 26, 1886.

Friend T., I feel quite certain that the reason why your bees do not go up into the surplus-receptacles is because the honey-yield is closing. With one or two sections containing combs partly built out last season, placed among the empty ones, they will be almost certain to go up if honey enough is coming in to make it advisable. The fact that bees have been once up in the sections in a cluster is evidence that they have started to work; and on account of cool nights, or a lack of honey, they have given it up.—It is quite a difficult matter to move your bees an eighth of a mile, unless you do it in the winter time, after, say, a lapse of two or three weeks of weather unsuitable for them to fly. They will go right back, as you say, if moved during the working season.—Sensational stories about spurious comb honey are, I believe, pretty much at an end. The low price at which honey is going to sell this season will have much to do in the way of discouraging such talk.

CONTINUOUS SWARMING FOR FOURTEEN DAYS.

A SWARM SCOOTS FOR THE WOODS, WITHOUT ALIGHTING.

MY bees kept swarming out every day for fourteen days; then it rained, and the weather cooled down and so did the bees. We had been having very hot and *very dry* weather for a month. After I had written to you about my "crazy bees" I went out and gathered up all the loose boards I could find, and put them on the hives to shade them; and when I ran out of boards I used a few chicken-coops that had a blind side to them. Then it came to me that Mr. Heddon used shade-boards on his hives, and I thought most likely he had a patent on them, and would sue me, and put me in the penitentiary for imitating them. But the shading did not seem to do any good. As fast as the other swarms (after the first six) came out I carried them to the deep shade of the European larches and gave them plenty of air, and they behaved. One of the bad six

WENT TO THE WOODS WITHOUT ALIGHTING,

Leaving the queen under the goblet. You ask why I did not divide the swarms. I answer, "Because that is not my method." I don't like bees; I keep them for the money that is in them, and I won't have a lot of semi-good colonies sitting around, nursing young bees that I care nothing for when the white-clover season is over. My bees have got to be booming colonies, and do business worth while, or I won't keep them at all.

Ernest says, on page 501, that it is because the child is unconscious of danger that it does not get stung, and that nervous people are apt to get stung, or words to that effect. Yesterday, when I opened a hive from which a swarm had just issued, to take out a frame of brood, two bees flew up and stung me, one on the eye, the other on the jugular vein. I thought I could get used to doing without a bee-hat and smoker. I had on a sun-bonnet, and I shut the fronts of it together, and walked to the kitchen, with dozens of angry bees flying around me, fired up the smoker, and made those bees dance. I smoked them for all that smoker is worth, and not another bee stung me. My arms were bare to the elbows, and *I was mad*. I am now going to treat my bees just as I used to treat "Jenny" the mule—always keep the upper hand—no patting, no favors.

I do not like those crates with glass in the side that I got of you. I do not like the closed-top sections; it makes the bees uncomfortably warm. I want crates that I can tier up five deep. I like Mr. Foster's section, with openings on every side. That is, I like the idea, and I am going to try them when I buy again. MAHALA B. CHADDOCK.

Vermont, Ill., June 19, 1886.

I am glad to know, Mrs. C., that you like the open-top sections. I presume the reason why so many object to them is because of the trouble of closing the openings. The closed-top sections, I presume you know, are already closed. I suppose the latter are more convenient for a colony that is not strong enough to need tiering up.—Haven't you got some hybrids among your bees, my good friend? and isn't this why they are so cross?

ANOTHER GOOD REPORT FROM ALSIKE CLOVER.

WHAT FIVE ACRES WILL DO.

FRIEND ROOT:—We have just had a good chance to test the merits of alsike clover, and it has done nobly. Our 5 acres, sown last season, for the past 5 weeks has been roaring with bees, and they are still working on it to some extent. The month of June, in the past five seasons, has been our discontent, and the hardest on bees of any month in the year—no white clover, no basswood, the spring bloom all gone, fighting and robbing all through the month. Alsike bridges a very bad place, besides the hay and pasturage we get from it. Nearly 100 colonies had access to our alsike, and our own 30 colonies increased to 66 by natural swarming. From one colony that did not swarm, we extracted a common water-pail full. Several others nearly finished their sections. All first swarms, and some after-swarms, have the hives full of brood and honey —not a swarm lost by absconding; gave all a frame of brood. The only swarm that tried to leave was a rousing big first swarm. It came right out of the hive, and, without clustering, "lit out." I followed them a mile and a half, waded a creek, climbed a tree, got 'em into the light swarming-box I happened to have when they "lit out;" brought them back, and they are now all right. Don't say it wasn't a *first* swarm, for it was, sure. Hurrah for alsike! M. F. TATMAN.

Rossville, Kansas, June 29, 1886.

HOW LATE SHALL WE KEEP WINTER PACKING ON THE HIVES?

MAKING CHAFF CUSHIONS FROM EMPTY PHOSPHATE-SACKS.

IN GLEANINGS for June 15, Mr. W. Z. Hutchinson speaks of the good effect of keeping bees packed on their summer stands till warm weather. Here, where we winter on summer stands, every farmer uses more or less bone meal, bone phosphate, or other fertilizers, and the empty bags of strong burlap are washed, and, before cold weather, wheat chaff, say one-half bushel, is put in, and it is spread evenly and closely over the top of the quilt for winter. They are easily removed for examination, and a use of these for years has proved very satisfactory. They are left on till I get ready to put on cases, and the protection is a decided advantage during the cold nights and wet days of spring.

One season I tried the experiment of packing hives with chaff all around the hive, and left them so packed during the summer, with a free entrance. They performed no better and no worse than others not protected, excepting top chaff packing.

One of the objections formerly raised by me to friend Heddon's "innovations" of thin sides for hives and cases, with no other joints than a planed surface gives, was the exposure to sudden changes of temperature. We know a high degree of heat is essential to comb-building; and we also know that, if that heat has to be supplied as it is by the consumption of honey, that it pays us to economize in the costly fuel, and protect, to save the waste.

It is to be hoped that experimental work this season will determine the value of the narrow L. hive.

If, as is now claimed, the contraction of brood-chamber to five or six frames during the honey-flow will prevent the accumulation of pollen, it will be a boon to many who are over-burdened with its accumulation in the brood-chamber. But here, when at times we have sheets of comb two-thirds filled with pollen, it disappears rapidly in the spring, to be replaced later by new pollen.

This shows its importance in the internal economy of the bee-hive. But at times it is a nuisance, and valuable brood-space is sure to be preoccupied, if, from any cause, the queen is not fecund and active.

The yellow capping mentioned in my last is evidently a trait peculiar to some bees. I am marking for a change of queens and stock, all that show it.

Our season is wet, and for the last two weeks we have had a decided improvement in the honey-production, and bees are booming. J. W. PORTER.

Charlottesville, Va., June 28, 1886.

Friend P., your suggestion is a valuable one. The phosphate-sacks are of exactly the right material, and they come so near being the right size I do not know why they will not answer about as well as any thing we can make. Our experiments of late have all indicated that it pays, and pays well, to protect the hive from both heat and cold while the bees are building combs and storing honey in sections.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE QUEEN THAT STOPPED LAYING.

THAT queen mentioned in my letter — page 485—commenced laying all right within three days after that letter was written. My guess now, and it is only a guess, is, that she had previously laid drone-eggs exclusively; and the little colony, having no use for that kind of increase, had destroyed the larvæ.

You have done a special favor to me, and probably to others, by telling your experience with Carniolans, though it is rather disappointing.

THE HONEY-JUMBLES.

Will you now please publish a recipe for making those honey-jumbles mentioned on page 460? It might be useful to families who do not live within range of your wagon. DAVID STRANG.

Lincoln, Tenn., June 21, 1886.

In regard to the recipe for making honey-jumbles, we have written to the manufacturers, and below is their reply:

We should not like to sell a recipe for our honey goods, as it would likely get into the hands of other bakers to our injury, as we pride ourselves particularly on the superior quality of our honeys. The recipe would be of little or no benefit to families, or any one working without machinery.

CRAWFORD & TAYLOR.

Mansfield, Ohio, June 29, 1886.

Now, although it seems to be true that jumbles exactly as good as those we sell can not be made in families, no doubt our women-folks, by a little experimenting, could make something near it. Another thing, if they are home-made they might be given to the children hot. I have always been a great admirer of hot cakes and cookies when they are first tumbled out of the oven. It seems to me they are nicer then than they ever are again afterward. After the friends have tested ours, and have tried their skill in making something like them, we will gladly publish recipes for making honey-jumbles. We can send four by mail, for samples, in a pasteboard box, for 10 cents.

A FEW QUERIES; ALLEY TRAP, HONEY-DEW, ETC.

Bees are booming on clover and honey-dew, which is the first I have seen here for 12 years. It is very plentiful some days, but we had a good rain to-day which will perhaps put an end to it. If you will answer the following questions in GLEANINGS it will greatly oblige me, and possibly many others. How can we tell honey-dew honey from other honey? Have you yet captured any queens in the Alley trap, and hived your swarm without climbing and cutting it down? In other words, does the trap pay? is it a success in hiving? In regard to the Alley queen-nursery, can we raise queens with them by cutting out any extra queen-cells we do not need in other hives, and placing them in the nursery and keeping them in the center of any good hive? If so, how long can they be kept in the nursery? and how about fertilizing them? Now, I have 50 hives. I want to keep from 60 to 80 swarms, but always find five or six hives queenless every spring. Will it pay to try to raise and keep a few queens on hand, or is it best to put new swarms in these queenless hives?

W. H. RITTER.

North Springfield, Mo., June 16, 1886.

Honey-dew can be detected in sealed combs by a dark shade of color which it presents under the cappings. By holding the section or frame of capped honey between you and the light, the difference in color between the honey-dew honey and the clover or basswood is so great the bad portions may be cut out with a knife; the rest can then be used for table use. Even a single cell can be detected in this way. Other dark honey may present a similar appearance, but the surest test is the taste. If you once get a drop of the pure stuff on your tongue you will never forget its sickening flavor.—The Alley trap has been used very successfully by us. See department of Our Own Apiary of last issue, and also page 461, current volume.—If I am correct, Mr. Alley designed his queen-nursery for the very purpose of keeping extra queen-cells. See page 23 of his book on queen-rearing. After the queens are hatched they are to be given a queenless colony, which we do by simply letting them run in on the frames. The queen will then be fertilized in the ordinary manner, if she be accepted by the bees, which she is, in the majority of cases, with us. We use, however, and prefer, the lamp-nursery described in our catalogue, for hatching young queens, to the one used by Mr. Alley.—You could probably raise your own queens if you have a good queen to breed from. You will find your questions more fully answered in the A B C book.

THE DANGER OF LEAVING QUEEN-CELLS IN A COLONY WHERE A QUEEN HAS JUST BEEN INTRODUCED.

A most peculiar misfortune has happened to me in regard to a queen I bought of you, as follows: June 9th I received an untested queen from you, which I immediately introduced to a colony I sold a few days before to a friend. The colony having swarmed before this time, I cut all the cells out and put a piece of larva in. On Sunday, June 13, I looked in and found the queen all right; but on the larva they had started some queen-cells which I supposed the new queen would destroy, and so I did not touch them, but put on the upper story, supposing every thing was all right. This morning, the 22d, I found the queen dead before the entrance. On looking in I found that your queen had filled several frames with eggs, some frames having brood ready to seal. On looking further I found a *hatched* queen-cell on the piece of larva, and also a small unfertilized black queen which would have come out only yesterday. Does this happen often? and why does the queen not tear down cells? I found the other queen I bought of you doing so. As this hive belongs to a friend who does not know much about bees, he might accuse me of knowing nothing of bees, and say it was my fault.

G. WIEDERHOLD, 11 12.

Yonkers, N. Y., June 22, 1886.

Friend W., as a rule the introduced queen will destroy the cells, but there are occasional exceptions, like the one you mention. They are so rare, however, that we seldom take the trouble to destroy the cells unless the queen is one of special value.

SHALL WE PRACTICE ARTIFICIAL SWARMING?

My bees do not swarm as I think they should, so I tried artificial swarming on one and have a good young swarm from three frames of brood; but the process is too slow for me. I swarmed them May 30th, and can't expect the queen to lay before June 20th. Would it not pay better to buy queens to start with? I am using the American hive, but I do not like it. What hive do you recommend for a beginner?

E. T. CASE.

Nunda, N. Y., June 18, 1886.

Friend C., the matter you mention is so fully discussed in the A B C book I do not think it is best to take space to go over it here. Circumstances must determine whether it is better to buy queens or raise them. The fact that the Langstroth frame is so universally in use would be a sufficient reason for adopting that in preference to any other, and I certainly think it gives as good results as any other.

A FIVE-CENT PACKAGE OF COMB HONEY.

Since trying the 1⅝-inch sections in crates, I am so well pleased with them that I think I shall henceforth use them almost exclusively. The combs are as nice and straight as I have ever had them, even with separators attached; and as they do not hold so much they can be retailed for 15 cts. or less, and a great many more can be sold. Dealers say, if they can not get any thing so as to sell it cheap, they do not want to handle it at all. If the people want small packages, and are willing to pay the difference in price, why shall they not have them? I have long thought (and do not know but that I shall soon try it) to have comb honey in five-cent packages, so as to take the place, in a measure, of the filthy candies. The way I should try would be to have a nice thin comb built in a regular frame, and have little tin sections, or something of the like, and just press them in and let the bees fill them. But may be some one has tried and abandoned it, long before I was a bee-keeper, though I became one not many years ago, when I was only six years old.

CHRISTIAN WECKESSER.

Marshallville, O., June 21, 1886.

Friend W., this matter has been pretty thoroughly discussed. I do not think you want any tin at all about your sections. It does not answer well, and it strikes me we had better not undertake making a package of comb honey at a less price than a dime: and I believe that many experiments seem to decide the best way to do it would be by having a thin section. Make it the standard size, 4¼ x 4¼ inches, but let it be thin enough to hold 10 cts. worth. Perhaps ⅞ inch, the width of our brood-frames, would be about right. In selling sections of honey at a uniform price, the difficulty seems to be in having them all alike. If they are made thin, as above, of course we do not want to use separators; and the result will be, that some will be heavier than others. Perhaps it would not matter if they were. We are now getting 18 cts. a pound on our wagon for extra nice white comb honey in sections. They are seven to the foot in width, and the price runs from 15 to 18 cts. Since you suggest it, I firmly believe that a ten-cent package of comb honey is going to be a big thing. On our wagon we endeavor to have goods sold at 5 and 10 cts., even change, as much as possible.

WHY IS IT THAT MY BEES DO NOT DO AS WELL AS MY NEIGHBOR'S?

Now I wish for a little advice about my bees. I commenced the season with 5 colonies, and have increased so far by swarming, to 12; but they haven't made a pound of surplus honey, yet there is a plenty of blackberry and raspberry flowers here, and it seems as though they could do better. My hives sit on a level place, on good sawdust mounds, all in line, ten feet between hives each way, and close to a nursery of young apple-trees. They all face the east, and are in Langstroth hives.

BOX HIVES VS. MODERN BEE-KEEPING.

Last summer I got from one hive about 20 one-pound sections of surplus honey, which is the highest I ever got from one hive. I hardly ever average more than 5 lbs. to the hive, while only two miles away from me, in the same valley, a man who has about 40 colonies has already taken off nearly 400 lbs., and expects to make about $400 or $500 from the 40 or 50 colonies. What is the matter with mine? He keeps his hives on stands about two or three feet from the ground, and the bees he keeps in old-fashioned square box hives. If you can give me any advice on the subject, I should be very much obliged to you. I have never yet made enough to pay for the time I spent among them, to say nothing of the expense of the hives. I wish to make something on them if I can.

W. H. PRENTISS.

Prentiss Vale, Pa., June 21, 1886.

I think, my friend, that the hives or the way in which they are fixed has little or nothing to do with the amount of honey received by you and your neighbor; for although he is only two miles away, there may be a very great difference in the locality. This is easily shown by planting hives at different points in your immediate neighborhood, say from two to five miles apart. You will find that some will do a great deal better than others.

SPACING THE FRAMES TOO FAR APART.

I know you must be very busy while this enormous honey-flow is going on; but I must ask one or two questions. May 21st I put a primary swarm in a Simplicity, with 9 frames equally spaced, save two, they being too close. I covered them with new canvas, glossy side down. June 3d, 13 days afterward, I found the cloth being adherent, seven frames filled, other two partly, but many of them strongly bridged across. First, is there any better cover than what I have? Second, must I tear the frames apart? WM. S. ADAMS.

Queenstown, Md., June 7, 1886.

There is no better way than to tear the frames apart, cut out the combs, and make what use of them you can, and start the bees right. The use of comb foundation would have saved all your trouble.

SYMPHITUM ASPERRIMUM (COMFREY).

This has been advertised as something wonderful for honey-production and fodder-production, *100 tons to the acre*. This is an old dodge, 40 or 50 years old. I don't think a fact can be produced to show where it yielded 10 tons to the acre, or where any animal relished it as food, unless it is brought to eat it by starvation.

THE RESURRECTION PLANT.

You will not often succeed in making the resurrection plant grow. The only way to do so is to get it as soon as possible, as gathered in its native home, and then do not soak it, but lay it on moist soil, covered with a bell-glass or tumbler, shaded, so it revives by degrees. This soaking full of water, and exposing to the air at once, won't do it. If you take immortelles and dampen them they will shut up; put them in the sun, and they will open almost daily; and so with helychrysum, rhodanthe, and so on. F. J. M OTTO.

Sandusky, O., June 21, 1886.

SPANISH-NEEDLE HONEY.

Your comments on the article of T. S Robbins, in GLEANINGS of June 15th, led me to believe I could make a sale of some fine Spanish-needle honey to you next fall. We *never fail* to get a large crop. I have 30 hives arranged for extracting, and can pack in 1, 2, or five gallon jacketed cans. What can you offer for it per pound, f. o. b.? We are now harvesting a crop of fine clover honey —4600 lbs., from 100 colonies (comb honey). We always winter on summer stands, with Spanish-needle stores, and have very few losses. Last winter (a severe one) we did not have a single loss nor a single case of dysentery. E. BURKE.

Vincennes, Ind., June 19, 1886.

Friend B., we are at present so well supplied with honey that does not sell, that we could not promise to take any more. Perhaps some of the friends who see this will be able to take it off your hands.

WHY WAS IT THE COLONY WOULD NOT BUILD QUEEN-CELLS?

I have 14 colonies of bees, some bright Italians, and some mixed. I am in the flooded district. At the time of the flood here I had to move my bees twice, losing many by confinement, and some by falling in the water. I began building them up after getting them home. Two were queenless and weak. All built up well, as all had honey enough. May 8th, I had two natural swarms. I divided one, and started two nuclei with four frames each, with plenty of brood and eggs. Neither of them made an effort to make queen cells. I gave them each another frame of brood, with the same result. This I have done four times, as fast as the cells were sealed. On the 19th I examined them again; no queens, but bees plenty, storing honey and pollen. I have given one of them the fifth frame with three queen-cells closed, and one cell still open. Can you tell what is the matter? They are not storing much surplus, for out of 22 days it has rained 20, with a cloudy prospect for more. S. J. SMITH.

Chattanooga, Tenn., June 21, 1886.

I can not tell why those two colonies refused to build queen-cells, unless it is because they have some sort of a queen in their hives. Once in a while a colony gets a queen that does not lay, and they will very often hold on to her until they are rendered worthless. The only way to make them build queen-cells is to hunt them out. Introducing a laying queen would be the best thing, but they would probably refuse to accept a queen if it is as I have suggested.

REPORTS DISCOURAGING.

AN ADVERSE REPORT FROM TEXAS.

BEES have done worse this season than I ever knew before, one-half of them having starved to death. They commenced in March, the prettiest I ever saw, and raised a large amount of brood, and I was sure I should have a great many swarms by the 1st of April; but about that time we had a heavy frost that destroyed the bloom, and cold, continued rains until the 25th, and then it set in dry. We had no rain until the 18th of June. With such unfavorable weather we had no new swarms, and I don't think there were over half a dozen swarms in this whole section of country. I don't think that, in my 100 colonies, from the 1st of April to the 15th of June, they gathered over 10 lbs. of honey. They came through the winter rich; but on account of raising such a large amount of brood, and such unfavorable weather, they could not swarm. They destroyed their queen-cells, and clustered on the outside of the hives, leaving the impression they were going to swarm, until they ate up all their stores, then they began to starve to death.

About that time I was very busy cutting hives for myself and neighbors, leaving my wife to watch when they commenced swarming. By that means I neglected noticing them until I heard my neighbors complaining of their bees dying, then I began to examine, and found mine in the same condition. Then I commenced feeding, and fed 175 lbs. of sugar, but lost 10 colonies, from which you see it almost blasted my hopes and discouraged a great many beginners in the business, some of them losing all they had. What are left, however, are now doing very well, and the outlook is favorable. I am satisfied the Cyprians and Syrians are the bees for *this* country; for while the Italians and blacks give it up and quit raising brood entirely, the Cyprians and Syrians never stopped, and came through the drought strong, and are now working vigorously, while the others are just building up.

Notwithstanding the great disaster that has befallen the bee-industry in this section, I am not dispirited, and my faith is as strong as it ever was. I expected a great many swarms this season, and prepared to hive the increase; consequently I have about 100 extra hives on hand, and 80 lbs. of foundation, which I shall have no use for this year.

Gatesville, Texas, June 24, 1886. M. SIMPSON.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from June 15.

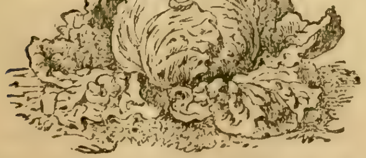
CHAPTER XIX.

If ye be willing and obedient, ye shall eat the good of the land.—ISAIAH 1: 19.

I have before mentioned, incidentally, the importance of selling our crops at a good price after they were raised. To do this, as well as to do any thing else well, the heart must be in it. The text above strikes at the root of the matter—you must be *willing*. Your work must be a pleasure and not a drudgery.

One of the first things to sell is lettuce. After we sold out our crop of lettuce from the greenhouse, by a little bad management we had no nice lettuce to offer our customers for some little time. Finally, however, here and there a head began to be suitable. What fun it was to see them improve and enlarge in just 24 hours! Yes, I learned to see a difference in the heads between morning and night and between night and morning. What fun it was to go over the whole plot and carefully pick out such as would answer, until we could say, "There, I guess there are about as many as the boys on the wagon will dispose of to-day." They start out at six o'clock. When they get home at noon one of the first things to inquire about is, "Did you have enough lettuce?" Sometimes the reply would be, that it just went round, and that was all; at other times, "No, we did not have half enough. Why, it seemed as if everybody wanted lettuce to-day."

By and by the heads began to fill up faster; and wasn't it fun to get a great basket full that were just right! All of the good heavy ones we got a nickel apiece for; smaller ones, two for a nickel; while those that weighed a pound or more would readily bring ten cents. A little later, and some of the Boston-market lettuce-heads began to show symptoms of wanting to send up a seed-stalk. As this Boston-market lettuce is one of the staple sorts, especially for greenhouses and cold frames, I will give a cut of it here, which is kindly loaned me by Peter Henderson.



BOSTON-MARKET LETTUCE WHEN IT IS JUST READY TO CUT.

When the heads begin to burst and to send up a seed-stalk, the matter has changed. Instead of rejoicing to see the growth made each 24 hours, we begin to wish they would not grow quite so fast, until we could sell them off a little. Mr. Bushnell (who is, I think, the oldest one among us) began to tell me that I was going to lose some of them because they would burst and start up to seed before we could possibly dispose of them. I told him to just let me do the gathering, and I thought I could fix it. The next morning I went over the whole patch, and counted to see how many heads there were that would have to be gathered that morning. Then I cut all that would not possibly bear to stand another day. After this I cut the next worse, until I got as many as they could possibly sell. Then I spoke to the men on the wagon something as follows:

"Boys, if you can manage to sell all these heads of lettuce to-day, I think we can take all to-morrow morning that will be so far along they must be cut, and so on. Now, suppose you make a little extra effort to *push* the lettuce, even if you don't sell so much of something else, that we may avoid losing any."

What do you think the result was? Why, the first thing when they got home was to tell me, "Mr. Root, we sold every head of your lettuce, and could have sold more too if we had had it with us."

The next day I did the same thing, and so on, keeping ahead of the ripening until we had a little shower. Then Dame Nature was too much for me—the heads suddenly burst open—a great number of them.

Let me here digress a little, to say that I had for some time had my eye on certain heads that I wished to save for seed—some that had made great big hard heads which remained a great while, ready to cut, without bursting open at all. Now you can readily see that, had my whole patch been like these few choice heads, it would have been a great help indeed in working off the crop. Not only this, they got so large and heavy before they burst that we readily obtained ten cents each for them. Well, after the shower I put stakes about these choice heads, marking them "For Seed," so nobody would make a mistake and cut them. Then we cut all the others that would not bear to be left in the ground an hour longer. We put as many on the wagon as would probably be sold by offering two pretty good-sized heads for a nickel. The rest we placed in the cellar, right on the damp ground. Lettuce can be kept one or even two days in such a place without any apparent wilting. It is better to cut them then than to leave them in the ground; for the sunshine after the shower would cause them to shoot up very rapidly; whereas, if they were cut off and laid in the cellar all this mischief would be at an end. By this kind of careful management our whole crop was worked off at an excellent profit; whereas, had the work been done carelessly by some one whose heart and soul were not in it, it might not have paid expenses.

Do you urge that it was not using our customers right to push things? I admit, that this might be carried to such an extreme as to be injudicious or wrong. But right here comes a point in regard to selling things. People very often buy that to which their attention is particularly called. We have two good salesmen on our market-wagon, and a small boy to do errands. A few days ago said small boy gave me quite an important fact. We happened to have a good stock of peas at the same time that we had a good stock of strawberries. Both needed pushing. Said the boy, "My pa can sell peas at almost every house. Mr. Weed can't sell peas, but he can sell strawberries at almost every house." Now, the probabilities are that we have many customers that have about so much money to expend for dinner, and it does not matter very greatly to them whether they have peas or strawberries. One man had got started in selling peas, and it came easier for him to make sales with them than with strawberries. With the other it was the other way. Of course, people should be allowed to purchase what they wish; but at the same time we all of us unconsciously influence people more or less with whom we have to deal. Let me give an illustration:

Some years ago, when we had a counter store on the fair-ground, I was a good many times greatly surprised that a thing which I expected would sell wonderfully, did not sell a bit, and *vice versa*. For a while I could not understand how my judgment was so much at fault. An incident gave the explanation. During quite a rush of business there was a complaint made that they were short of help. I accordingly asked my brother-in-law, Neighbor H., to please "lend a hand." This he did willingly, for he is a great fellow to talk and visit. We had just received a fine lot of stereoscopes, and the price was exceedingly low. I expected that, on the fair-ground, we should sell a great many. To my surprise, the clerks informed me that the stereoscopes did not sell a bit. Neighbor H. took a fancy to the stereoscopes, and before I knew it he was selling them to almost every man, woman, and child that came along. Another clerk was selling great big retinned dish-pans to everybody he traded with, and all went away satisfied, and a good many declared their purchase was exactly what they had wanted for a long while. It worked something like this: One of the clerks who didn't care much about stereoscopes would show the instrument in an indifferent way, not mentioning that it was very much lower than they had been sold; and I shouldn't wonder if he sometimes omitted to tell the price at all. A customer would say, "Oh, I guess I don't want one to-day." Now, Neighbor H. would tell so much about it, and show it to such good advantage, that the bystanders were interested; and perhaps he would set some of the children to teasing papa to get an instrument, with a lot of those pictures, to keep in the parlor, etc.

Now just one more illustration, dear reader, in regard to this matter of selling your products; for indeed it is so very important a matter I hope you will excuse me if I refer to it again and again. A few weeks ago we purchased a barrel of honey-jumbles—a nice little cake sweetened entirely with honey—no sugar or molasses entering into its composition in any shape whatever. I was very anxious to have these introduced in our town, and introduced generally, because of the opening it promised to dispose of the surplus honey now in our markets; and I thought I gave the boys on the wagon special directions about showing and explaining what the cakes were made of. I was considerably disappointed, howerever, to find they did not go off very well. A few days later I did not see the glass case containing them on the wagon at all. I asked the driver for an explanation. He replied that they were out in the rain one day and got wet, and so they ate them up, what there were left. The rain water made the case untidy, and so they sent it down into the kitchen to be washed.

"But," said I, "aren't you going to carry them any more?"

He replied that they didn't know whether

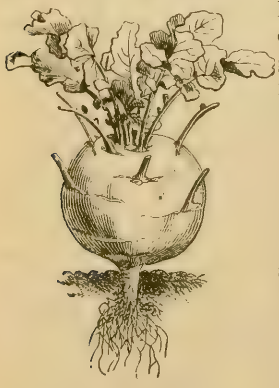
I wanted them kept on the wagon any more or not. Now, if there is any thing in business that vexes me, it is to find that our boys or girls have dropped something, or pushed it away out of sight, and let it go; and then, when questioned about it, say they did not know I wanted it used or kept in sight any longer. I could not believe that the honey-jumbles would not sell if properly introduced; so I sent to the manufacturers for *10 barrels;* and then I explained to all those who went with the wagon that I wished them to take them to every house, tell the folks what the cakes were made of, and see if they could not get them started. What do you think the result was? Why, they sold *16 dozen* the first forenoon. The next forenoon they sold *18 dozen;* and in about a week they had sold *four barrels* out of the ten. It is true, I reduced the price from 10 cts. a dozen to 8 cts. a dozen; but I am sure that giving them a fair showing had more to do with it than lowering the price. Do you see the point, you friends who till the soil, and raise honey or any thing else for sale?

Where a crop is going to spoil, there is no harm at all in using a little extra pains to sell as much of this as possible, in place of something else you are short of. If the lettuce is nice, there are few families where it will be wasted or thrown away; and it is relished by more or less people at every season of the year; but if your salesman is indifferent, or tired out, you may lose a great part of your crop in consequence, so you must keep an eye out for such contingences. Do the same thing with your radishes; and when raspberries and strawberries come, dispose of them in a like manner. Green peas are one of the great staples in market-gardening. Plan so as to allow nothing to go to waste, and have each article presented to your customers in the best possible shape, fresh and attractive; and this brings us to Chapter XX.

CHAPTER XX.

He that shall endure to the end shall be saved.—MARK 13: 13.

Not only will the man who patiently and faithfully endures, be saved, but he will be prospered here in this world. How many, many give up because, for a time, circumstances and conditions seem to be against them! When we first started out our market-wagon it was a thing so new and unheard of here that quite an opposition was raised to it. The grocers said it was not fair to go around to people's houses and catch their customers, and take away their trade. Men who had done a very little in the way of gardening thought that it was not fair that I, with my many resources, should break down their business by raising garden-stuff when I was not obliged to do it to get a living. Others thought the idea was ridiculous, that we could here, with our Medina clay soil, compete with the quality of the produce from Cincinnati and other great market-gardening points. Well, for a time it seemed as if there were some reason in all the above positions. People laughed at our produce, some of it; others refused to look at our stuff at all, because they thought we were not using the grocers right. A third said they never saw us have any thing nice. When we raised lettuce in the greenhouse, and put it on the market in February, they wouldn't buy it, because, they said, nobody wanted lettuce in February; and we were finally obliged to send a large part of our crop to Cleveland, where we got *25* cts. per lb. by the barrel for it, instead of trying to peddle it out on the streets here at home at only *20* cts. per lb. Well, I didn't give up, for I knew, or thought I knew, that people would in time be educated to these things. Last year they wouldn't buy cauliflower, because they didn't know what it was for. Somebody finally discovered that it was good to make pickles, and we sold pretty nearly our whole crop at pretty fair prices, to be made into *pickles.* This year we started some kohlrabi-plants in the greenhouse; and during the month of June we had quite a lot of beautiful bulbs ready for the market. The boys suggested that the vegetable would not sell, because nobody knew what to do with them. Perhaps I should add, that our wagon this spring has been getting to be a little more fashionable; that is, the nice vegetables we have been sending out "talked" themselves, and won their way into many new homes. Well, to my great surprise the kohlrabi very soon got a footing. It is true, that people did not know how they were to be cooked—a good many of them—and quite a number had never seen or heard of such a thing; but they had got into a sort of way of thinking that whatever we carried was good, if it were cooked right. Ernest's wife thought she would try cooking them as we do vegetable oysters, and they declared them to be "just splendid." Young married couples are a good deal inclined, you know, to call every thing "just splendid." Other folks cooked them as they do turnips or mashed potatoes, and they proved to be "splendid" that way. Pretty soon the kohlrabi-bulbs were called for a good deal faster than they grew, and we didn't have any trouble with overgrown ones. People called for them when they didn't know what the name was. One individual, after trying in vain to hit the name, said he guessed they called them "Kohl Abrahams." I could not think for quite a while where he got hold of "Abraham" until I remembered that Abraham was one of the greatest of the patriarchs, and a patriarch was often, in old Bible times, addressed as "rabbi;" or, at least, their descendants were so called in Christ's time. So our friend knew that it had something to do with patriarchs, and "kohl Abraham" was as near as he could get. Another customer wanted some "*Arabs*." Of course, he got what he wanted. We sell two bulbs for a nickel. What do you suppose an acre of ground would amount to with a good crop of kohlrabis sold at the above price? And, by the way, we can put kohlrabi on the market without trying very hard, before you can get cabbage, green peas, turnips, or any thing of the sort. Raise the plants indoors, just exactly as you do cabbage-plants. Plant them out in good rich ground; and before a cabbage would think of making a good head, these kohlrabis will have made beautiful bulbs. As some of the friends may not be familiar with this member of the Cabbage family, we give a picture of it. They must be used when they are, say, the size of a good fair-sized apple; for if allowed to grow very large they get woody and stringy.

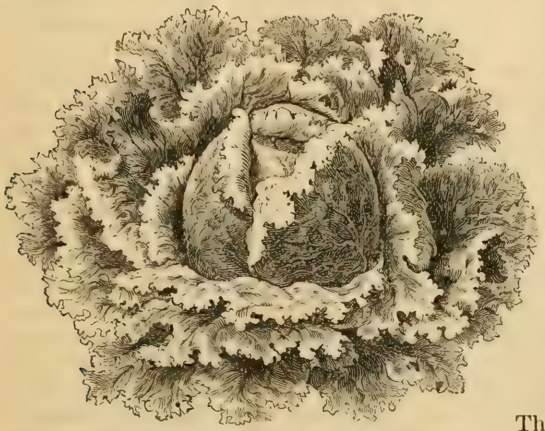


KOHLRABI.

SOMETHING ABOUT SAVING YOUR OWN SEEDS.

Now, a point comes in here that I want to talk about a good deal; in fact, I shall talk about it all through this book. I told you about marking the best heads of lettuce "For Seed." You want to do the same thing with kohlrabi, cabbage, and almost every thing else. Do you want to know why? If you could go to our kohlrabi-patch to-day you would notice that here and there are plants that are not going to make kohlrabi at all. Some of them look as if they hadn't quite decided what *to* do. One starts to make a cabbage-head; another has evidently got a mistaken idea that it was planted for a turnip, while a third is clear off from the track and is trying to put up a bunch of blossoms like cauliflower. What is the trouble? Why, the seed has not been carefully saved from choice specimens. The type of the plant has not been fixed by careful selection for many generations. You may say that I didn't purchase my seeds from a reliable house. Well, I got the seed from Peter Henderson or Landreth & Sons—I am ashamed to say I can not now tell which, and there is where I am to blame. You should know just where you got the seed for every thing you raise. Better still, you should raise your own seed, if it is a possible thing. The first kohlrabi that made a nice bulb should have had a stake put up beside it, labeled, "For Seed." Right here the interesting point comes in, that I do not know how they get seed of kohlrabi. I am going to find out, though.

There is an excellent little book published by Mr. Francis Brill, entitled, "Farm-Gardening and Seed-Growing." This tells us all about how to raise seeds of almost all our garden vegetables. Now, then, if I had for several years raised my own seed from none but choice bulbs, I myself could have fixed the type of our good friend "Kohl Abraham" (?) so that he would know just exactly what I wanted him to do when he got to the proper age to make a cabbage-head, a turnip, a cauliflower, or a kohlrabi. Our best seedsmen aim to do this; but, my friends, with the best intentions in the world it is next to impossible for all large seed-houses to have every seed they send out selected from none but such nice specimens as you and I can produce in our own gardens. It is the same with cabbages. We are now picking daily the prettiest little heads (almost as hard and heavy as a turnip) from our patch of 2000 early cabbages. Now, while the majority are of heads like these, quite a good many are making no head at all. They don't quite understand what is wanted of them, and so they are just acting foolish, and are of no use to anybody. They remind me of some boys and girls I have seen in this world. With the cabbage it is the fault of the parents and the early training; and I am afraid it is true, too, with foolish boys and girls — it is the fault of the parents and early training. Now, I have never raised cabbage-seed, and I don't know what I can do; but I am so well satisfied of what may be done that I would give to-day ten dollars for the seed of *one* cabbage-head in that patch of 2000. Do you want to know why? Because it commenced making a head almost as soon as the plant was taken from the greenhouse and set in the field, and a beautiful little head, too, hard and firm, and ready for the market fully *two weeks* ahead of any other plant in that field. The books on seed-growing say that this cabbage-head must be kept over winter before one can get seed from it. Well, it was raised so early I am afraid it will be a hard matter to keep it over winter, but I am going to try hard. I think I can get some sprouts from the stump, to raise some more heads later in the fall, that will give me seed next year, if I can not get seed from this one. Doubtless some of the older heads will smile to see me come out in print and confess my ignorance. Never mind, dear reader; let them smile. I have been "smiled at" a good many times in my life; but the ones who did the smiling at first, often smiled in *surprise* a few years afterward. Seed-growers have great difficulty in fixing the type of their seeds, I well know; and when a new and superior seed is placed before the people, the growers are entitled to a good reward. And this reminds me that, after our Boston-market lettuce was sold and gone, we had arranged for a succeeding crop of Henderson's new "New York" lettuce, as he calls it. This lettuce not only produces immense heads, but it is remarkably slow about shooting up to seed. Great nice heads will stand for many days waiting to be picked, and the quality is equal to any thing we ever had. It is a large late lettuce, so it probably will not answer as well as for greenhouse culture. As this "New York" lettuce seems to be quite an acquisition, we give a cut of it.



PETER HENDERSON'S NEW "NEW YORK" LETTUCE.

This lettuce makes wonderfully large heads. It is nothing to have them weigh from a pound to a pound and a half; and the inside of these great heads is as white and crisp and nice as celery. As it is not at all bitter, I have often eaten a whole head with great relish while out in the fields. Although it is very slow in sending up seed-stalks, we find somewhat of a tendency to rot, unless it is cut, say, in a week or ten days after the heads get fully grown.

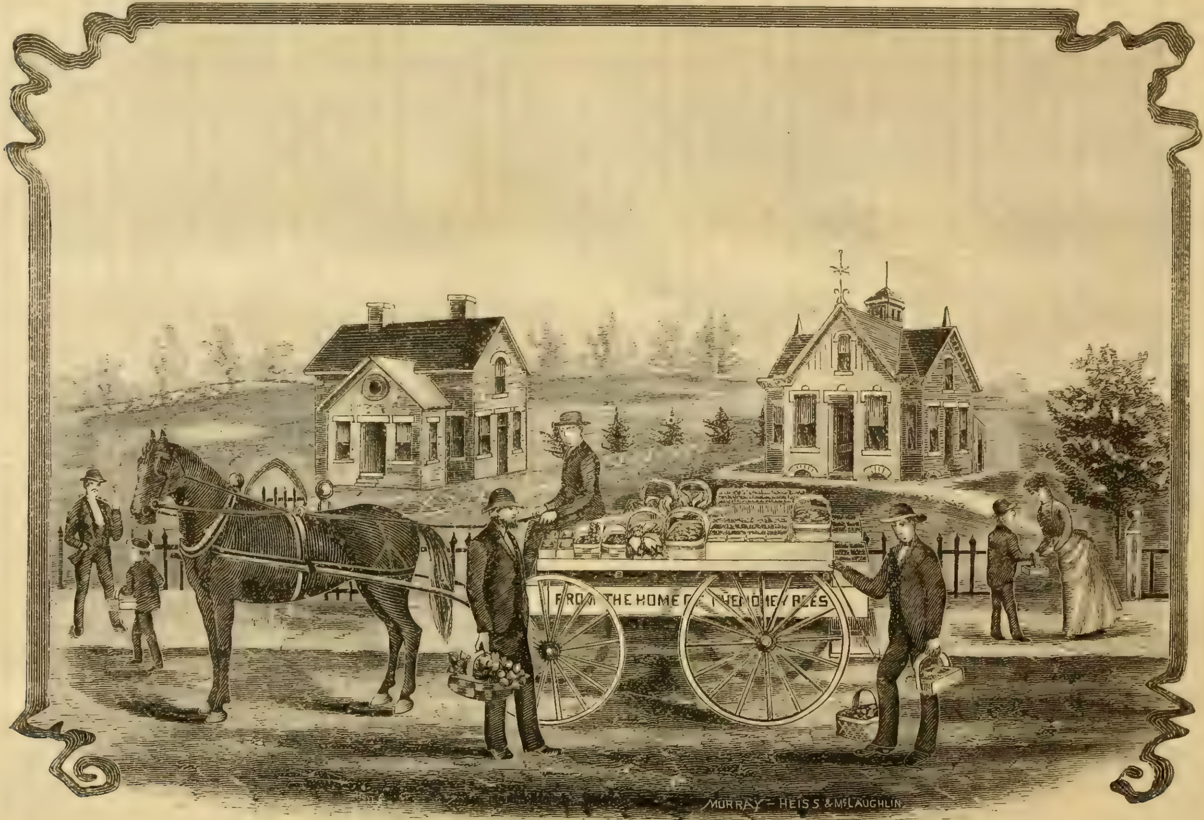
In the fore part of this chapter I mentioned the prejudice that existed toward our market-wagon when it first started. Well, notwithstanding this prejudice, and notwithstanding it did not at first pay expenses, we kept it going right along day after day, and even during the winter: when the roads were suitable we went with either wagon or sled. In the winter time we carry apples, turnips, potatoes, parsnips (when the weather is suitable to dig them), vegetable oysters, winter squashes, celery, etc. When the roads were too bad to go with a single horse, we sent out a stout double team, one that is generally used for plowing, drawing manure, etc. Going out under unfavorable circumstances during bad weather occasioned criticisms again, because people generally could not understand why we should stir ourselves so much for so little trade. My purpose was, to give them to understand that the market-wagon expected to be a regular institution, and one to be depended upon. Well, it seemed for a time as though prejudice was so great I should have to give it up; but I have found the little text at the head of our chapter true in business matters as well as in spiritual things. A writer on the management of horses once said, if a horse disobeys you, strike him one good smart cut with the whip—just one and no more. When he disobeys you again, do the same thing. Show no resentment and no anger, but simply give him to understand by many repetitions that disobedience brings pain. By no means let him see that you are angry or mad. Teach him to think you are a machine. In a little time he will learn to obey as a matter of course. The same process, it is said, will cure a kicking cow. Be sure, however, that you do not talk loud, or yell at your dumb friends. Now, humanity, in some respects, is like a dumb brute; at least, there is more or less *animal* about all of us. If community gets prejudiced against you, don't talk, or make a big fuss. By no means get to talking loud, or yelling about it. Go ahead in the course you think is right, as if you were a machine, and teach them that unkind words or prejudice has no more effect upon you than it would have on iron and steel. *Endure to the end.* Let them know that your endurance is like iron and steel; that is, a quiet, patient, kindly endurance. By and by they will drop it all and forget it all; and when they discover that you are not going to adapt yourself to their notions, they will, *if you do your duty*, adapt *themselves* to *your* notions.

I was a little amused, a few days ago, to hear Mr. Weed say that I had no conception of the feeling that was growing up in favor of our home-grown stuff, compared with that which came from the cities. He said it was getting to be so, that, no matter how nice an article he offered, the question was, "Did you raise this on your grounds, or was it shipped from the city?" If he told them it came from the city, it was handed back: if it was our own production, it was taken at once, without any further question.

Yesterday we had a fine lot of nice "Jersey Wakefield" cabbages that were purchased from the city, because our supply ran short. We ordered the best that could be found in the market, and got them. When the boys got back they said they had an order for two of our best *home-grown* cabbages. Nothing was said in regard to price; they must have some that grew on *our* grounds or none at all. Our wagon has not yet been running a year. Probably one thing that has contributed this spring to capture public sentiment is the fact that a great deal of our stuff is gathered in the morning, before six o'clock. Our customers get it fresh with the dew of morning still on it. Raspberries and strawberries are often picked, and sent by a boy to catch the wagon; and the small boy before mentioned, who accompanies the wagon, comes back almost every day with an order for "half a dozen more lettuce—more kohlrabi—25 winter-cabbage plants—6 quarts of strawberries, to be left at Mr. ——'s at exactly three o'clock," etc. The difference between things absolutely fresh, just gathered, and those that have been standing by the door in front of the grocery store for one or more days is a big point. While strawberries were selling on the street at 6 and 8 cts. per quart, we received 10 cts., for fresh ones right straight through the season. In fact, we have not sold a quart for less than 10 cts., unless it was some that were left over; the same way with raspberries, and the same way with peas. Inquiry is even made as to whether the *new potatoes* we carry around are raised by us or bought; and, by the way, I want to say a word in regard to

NEW POTATOES.

Some time about the 15th of April my wife informed me that some potatoes in a large pail in the cellar had sprouted to such an extent that they bid fair to make a huge bouquet, only the bouquet was composed of leaves and not flowers. I took them at once to the field to plant. Mr. Bushnell said I might as well pull the sprouts all off, for they would die anyhow. I told him they would not die after I had got them fixed. I chose some mellow sandy loam near where they were sowing parsnip-seed. I pulled the potatoes out of the pail myself, separated the roots, and then cut them, *a la* Terry, so as to give a good chunk of potato to every strong sprout: the end of the potato containing a good many small eyes was cut off and thrown away. Then I planted my potatoes as you would put out cabbage-plants in the furrow, putting ground around them with my own hands. A nice shower came soon afterward, and I pointed triumphantly to my potatoes, 6 inches high with green leaves on them before any of the rest of the potatoes were above ground. June 18th I thought I would see what kind of potatoes there were under the great branching tops. Well, to my astonishment the potatoes were of good size, and a pretty fair quantity in each hill. They brought 35 cts a peck readily. As nearly as I can make out, they were the Early Ohio. Now, then, my friends, do you want any better business than that—in 64 days after planting, a pretty fair crop of potatoes that sell readily at $1.40 a bushel? If I had some more sprouted Early Ohios I


FROM THE HOME OF THE HONEY BEES
MURRAY—HEISS & McLAUGHLIN

OUR MARKET-WAGON AS IT APPEARS BETWEEN 6 AND 7 O'CLOCK IN THE MORNING.

could get another nice crop of potatoes right off from that same ground. The whole thing is a very simple matter, and I mention it chiefly to illustrate the possibilities that are open to those who *claim* to be out of employment.

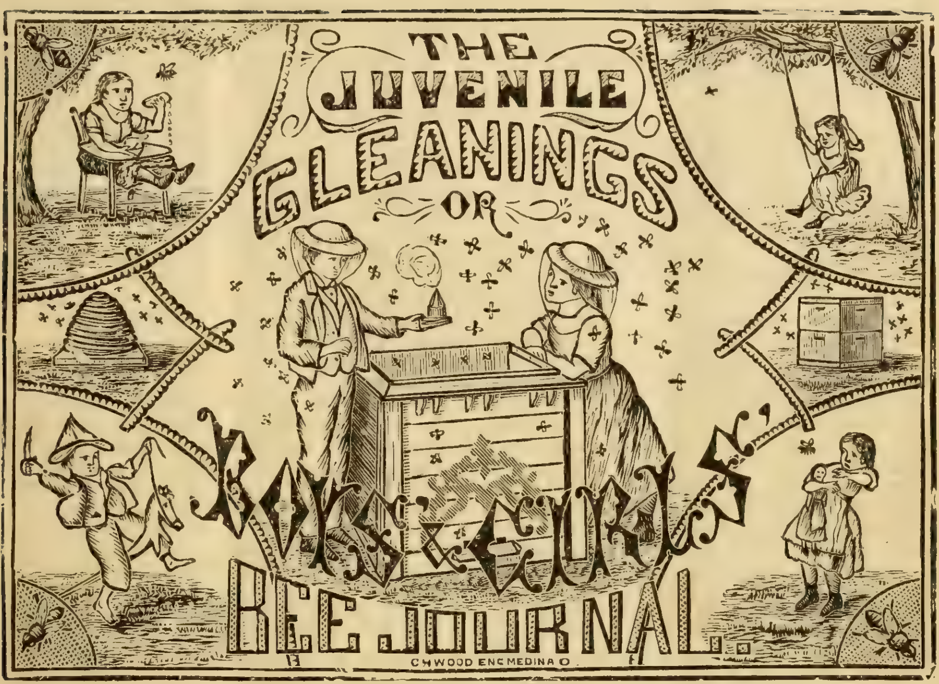
Now, then, once more in regard to the last part of the title of our book, "How to Be Happy," etc. Did I enjoy planting those potatoes? Why, to be sure, I did; principally because I thought I saw a plan of materially shortening the operation of getting early potatoes; and I did it nicely and carefully, so as to be sure they would succeed. They were hoed very little, because the whole crop was finished before the worst weeds got a going; in fact, the care of them was almost nothing. Did I enjoy digging them? To be sure, I did; and I enjoyed it *hugely* too. Some of the happiest hours I ever spent were those employed early in the morning picking out lettuce-heads that were big enough to sell, and, a little later, in selecting those that must be sold at once or their value would be gone.

Let us branch off from plants and animals a little to consider this point of enduring to the end in another way. We all of us complain more or less because things do not move faster, especially in spiritual things. Some years ago I took a boy from our streets, with the hope of making him better. He made me no end of trouble. He used tobacco; and when I discharged him for breaking our rules, he took pains to use blasphemy whenever he saw me, when I had occasion to come near him. By and by he was in straightened circumstances, and wanted work again. I gave him another chance. Again he had to be suspended or discharged. He seemed to be going from bad to worse. By and by he wanted to be tried still again, but it was the old story. I tried hard to be patient—prayed for a quiet and steady spirit, and kept on trying him, even when I had no heart in it, and no hope. Now, my friends, when that boy discovered that I had no spite or revenge, that I was kind, envied not, not puffed up, didn't behave unseemly, and, above all, was not easily provoked, he gradually gave over his bad habits, and, to my astonishment, seemed to, *of his own accord*, respect our rules, and, I am inclined to think, respect *my poor self* in a certain way. I am beginning to admire him, while I thank God for having answered my poor weak half-hearted prayers for him. I had unconsciously been, after a fashion, *enduring to the end;* and without thinking of *saving myself*, the probabilities are now that my quiet course may have saved *the boy*.

Since I have said so much about our market-wagon, I think I will give you a picture of it right here. Our artist has done his work pretty well, only that he has got rather more business about the wagon than occurs as a general thing. The number of men employed will depend, of course, on the size of the town or city; and very likely in starting the business one man would raise all the stuff, drive the horse, and sell out the whole load. Where a good trade is established, the fact that the vegetable-wagon is in the neighborhood may be indicated by ringing a bell or blowing a horn, the way the milk-men do; but where you have got to work up a trade as we have had to, nothing answers like taking a basket of samples and going to the houses. Our boys first tried it by simply inquiring at the door if any vegetables or fruits were wanted; but they soon found that this didn't work so well as to have a basket of samples to show as they went along.

The driver, if he understands his business, will get back in the middle of the wagon when trade commences, and measure up peas, get out what is wanted when the load is large, and make himself busy in a variety of ways. If time is short in loading up the wagon in the morning, the stuff may be put in baskets, and the driver can tie the onions, beets, radishes, etc., in neat little bundles while he waits for his assistant who is going around to the houses. It should be the driver's business, also, to carry a memorandum-book, and take orders, charge up things that are not paid for, and relieve the seller from every thing of this kind. Make it a study to economize time in every way possible; plan to have every thing done on rainy days that can be done under shelter. We do our selling every forenoon. I have often heard Mr. Bushnel say that it was very seldom you could find a salesman who would sell garden-stuff at a good rate all day long. This kind of work draws on one's energies, and therefore the best and most rapid sales are made in the morning. Toward noon the salesman gets tired, mentally and bodily. After he has had a good dinner, and a fair amount of rest, he may be able to do a tip-top afternoon's work in setting out cabbage-plants, cultivating, or something of that sort; at the same time he would have made indifferent work of pushing garden-stuff lively in the *afternoon*. Study your plants; study your helpers; and, above all, study *yourself*.

To be continued Aug. 15.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

For God so loved the world.—JOHN 3:16.

I WONDER if the little friends to whom I talk have a very clear idea of the many different definitions there are to the word "world;" that is, did you ever think in how many different senses it is used? We often mean by the word "world" the planet on which we live; but that is not the sense in which it is used in our text; for God could not love this planet of itself in the way in which he loves us. The word "world" is used in the Bible many times to indicate the things belonging to this world, which shall soon pass away. We are admonished not to set our affections on worldly things, because they are transient. Well, in our text it is very plain that the meaning is, that God loves the children of men; he loves humanity; he loves the people, all of them, even those who are unlovable; and he loves us so much that he sent his only Son down here to teach us and save us. God loves the people because they are *his* people; therefore *we* ought to love the people. We ought to love the busy throngs of humanity that stream about us and past us in swarms all around the most of us. If we want to be happy in this world we need to love humanity as much as we love ourselves. Loving the people is the opposite of selfishness. When we say that men and women or boys and girls love themselves, we mean that they are selfish. If they love themselves more than all the rest of the world together, they are pretty sure to be very disagreeable. We ought to love them, however, even if they *are* disagreeable. Jesus said, "Love ye your enemies, and do good to them that hate you." You see, if we love our enemies, we shall be pretty sure to love everybody, just as God does. Then we shall be fit to live with God, and to be with him when he sends for us. I believe that, as a rule, children, especially very small children, do love everybody. How the baby laughs and crows, and looks happy every morning! Does the baby at your house giggle and bubble over with fun every day? If the house should burn up, I suppose he would laugh in a very little while, if he didn't while it was burning. He is happy, because it is fun for him to live; and he thanks God for giving him life. Perhaps he does not think of it in that way, but he enjoys every thing —that is, if he is a good baby; and babies, like neighbors, are apt to be very much like their surroundings. Do you reply, that *everybody* loves people—that is, as a general thing? No, everybody does not like his fellow-men. Sometimes we have people who go off by themselves away out in the woods, and purposely get away where there are not any neighbors. We call them hermits. Then there are people who always stay at home. They do not go to picnics or celebrations on the Fourth of July. They don't go to meeting or Sunday-school. They stay upstairs, or out in the fields. Some of them lock the doors so the neighbors can't come in. If they don't lock the doors of the house, they lock the doors of their hearts. They have no friendships or confidants. We call such people misanthropes. "Misanthrope" means a man-hater. Well, now, man-haters are not very common, in one sense; but in another sense they are quite common. The great enemy of mankind, he whom the Bible says goes up and down the world like a roaring lion, seeking whom he may devour, tries to make people man-haters. He persuades them that their neighbors across the way, up street and down street, and all around, are selfish and proud and bigoted and scheming, and bad at heart. Sometimes Satan whispers these wicked thoughts to even the best of us—at least, I believe he does. I think that I, as a rule, love humanity. I like boys and girls, and I like men and women. I like to help them; I like to work for them; and, as a rule, if they do not appreciate my kind efforts, I like them still. I love them because the Savior loved them. If you want to know how much the Savior loved his disciples, read the last chapters of John. He loved poor Peter, even when Peter was so foolish and untruthful and cowardly and weak; he loved poor Judas, even when he knew there was no hope of making a good man of him; he loved James and John when they got so proud and selfish that they wanted to have places in heaven next to himself, and crowd all the rest away. In the chapters I have mentioned, you will notice how earnestly and fervently he prayed for them; and when those wicked men were killing him, he took their part so far as to say, "Father, forgive them, for they know not what they do." Isn't this a beautiful example and lesson for us when we get cross and contrary, and think our neighbors are not lovable?

Well, I don't always feel the way I do now. I wish I did, though. Sometimes I have contrary, ugly streaks, and I feel bad about it, and I am ashamed of it. I don't often let anybody know it, of late years; but sometimes these ugly feelings trouble me for quite a spell. Two or three Sundays ago, while I was in Church, Satan got hold of me. I suspect the first thing that made me cross was because somebody shut down the windows because they thought the breeze was too strong, when it seemed to me that we needed the fresh air very much indeed. I got to thinking how selfish the man or woman was, who sat close to the window. Then I looked at somebody who sat near me, and I felt cross at him. I didn't quite hate him, but I felt cross toward him. Then I felt cross toward the next man, so I thought I would look at some of the nice girls and women, thinking to myself, "Surely, they are lovable;" but, to my surprise, Satan whispered they were proud and silly, and that, in trying to fix themselves up nice, they just made themselves ridiculous. Then I looked at the people, and I began to be frightened to find that I felt hateful toward all of them. Then I looked at the minister. May God forgive me, because, for a brief moment, I felt hateful toward him as well as toward all the rest. I am sure it was not myself, but Satan, who whispered that the preaching was not doing a bit of good—that he was away off from the track, and that there was no use in trying to do any good with *such* a miserable lot, anyhow. I tried to think of something better, and to put away these evil thoughts, but they would not go away. "Lord, help!" began to well up, and finally I prayed most earnestly that God would help me to love my fellow-men. The answer to the prayer did not come right away, but I knew it would before long. I *knew* it would, because I have, hundreds and hundreds of times, prayed in that way before. This time it seemed as if I had got to have a regular rough-and-tumble fight with the adversary. As the wicked thoughts came teeming up, I almost groaned in prayer, "Lord, help me to banish these evil thoughts and evil spirits." Soon after this, peace came, but not much joy or hopefulness. I felt sore (or something like it) over the conflict. But I had done the best I knew how, and I felt a *sort* of happiness, *because* I had done the best I could.

In teaching my class after the sermon was over, I was startled all at once by a feeling that I loved the boys in my class more than I had loved them before for a long while; and the best part of it is, that that bright experience is not gone yet. When I got over to the jail I loved the poor friend I found there, and I plead with him to fight against evil as I had been fighting, for his own sake and for Christ's sake. I came out of the jail a little surprised to find that I was happy—yes, very happy; and the battle I had fought during the day helped to make me happy. It seemed as if it had been a sort of schooling for me—I felt stronger and better for it.

Now, there is almost always a sequel, as it were, to these bad feelings. I told you a month ago of the invisible forces that are at work in these frames of ours. Well, I suspect these forces at times have something to do with this. For some time back I have been getting up very early mornings—at half-past four and five o'clock. By force of habit I got up about the same time that Sabbath morning. Some of you begin to lift your eyes now, and may be think, if you don't say so, "Why, you poor foolish fellow, your overworking yourself was what made you sour and cross." Well, may be it was; but even if so, in answer to my prayer God pointed out to me the mistake I was making, and God helped me to rise above the effects of weariness and fatigue, and to say, "Get thee behind me, Satan." But feeling tired at the time of closing the Sabbath-school and before going to the jail, I laid down on the lounge and slept, I think, *two solid hours*. When I woke up I was in the proper frame of mind to love everybody. Now, look here; don't let's drop this just yet. May be your mother, your wife, your sister, or your child, is overburdened with cares and work, and has lacked sleep. Perhaps the one you are praying for makes slow progress in Christian grace, just because of overwork. What has that to do with you? Why, this much: Don't say a word, but just quietly go and help your mother; find out what she wants done, and do it for her nice and well. Plan to give her the amount of sleep she has been lacking, by bearing part of her burdens. The same with your father, sister, or brother or wife. You can do *this*, even if you are not a Christian; that is, one ought to do this, even if he does not profess to be a Christian. Then branch out a little and try to give a friendly hand to your neighbors in general. Learn to enjoy loving the world, or humanity, and in doing kind acts for them, and by so doing you will have found the pearl of great price.

Let me add, in conclusion, that a nap in the middle of the day, when my nervous force seems to be used up, I have discovered to be worth more to me than any kind of medicine that was ever put into bottles. Some of you may smile, and say, "Oh, yes! it is very well for one to talk about sleeping in the middle of the day, when he can take the time for it." To which I add, I accomplish *more* by so doing. I enjoy getting up with the sun, or a little after; and then when I work myself thoroughly out, I enjoy a good sound sleep between nine and ten. After my nap I can come into the office, right into the midst of the great rush of business, and do lots of *good* work in a very little while, because, you see, I love everybody then; yes, *all the world*, even as God the Father himself "SO LOVED THE WORLD."

MRS. HARRISON'S LETTER TO THE JUVENILES.

SOMETHING ABOUT CARP AND OTHER FISH.

DURING the busiest season of the year in the apiary, I am compelled to be a patient at an institute where electricity and baths are the remedies used. I've been very much interested in the papers in GLEANINGS, "In having something to do, and being happy while doing it." There are ten ponds here that are utilized for the rearing of fish, and I thought that perhaps some of the juveniles might like to know something about them.

There are several springs that issue from the bluffs, and these flow into four ponds. The first reservoir is rather deep, and in it is a school of Rocky-Mountain trout. Two others have fish from the Illinois River; and the fourth, brook trout. In the last-mentioned, cress is raised, as the clear cold water is its native element. I've often wondered whether Mr. Root raised this plant in his ponds, as it has a commercial value in our large cities, equal to lettuce, as a salad.

The other ponds are fed by water from an artesian well, and are used principally for the rearing of carp. The doctor claims that carp grow faster in these mineral waters, as it is warmer in winter.

I watched the old fish spawning one morning; and as they swam in couples around the ponds, throwing the spawn upon the cedar boughs and grass, they appeared to stir up the water like geese or ducks. I examined the eggs through a magnifying glass, and it seemed like a tiny hen's egg, with white and yolk; but the living embryo within was not a chick but a fish. Plenty of tiny carp were swimming around, as no other fish are allowed in the pond, to eat them up. The good dog Major catches the frogs around the border of the pond whenever he gets a chance.

In one pond there are about 1500 yearling carp, and the doctor bated a hook for me to catch some, so I could examine them. I didn't have to wait long before I had a scale carp weighing about a pound, swing around upon the hook. I took out the hook carefully, and, after rubbing its pretty sides, let it glide away into the water, to tell its companions of its adventures. The doctor says, "Now you must try to catch a mirror carp; that one was a scale." The scale seem to bite the best, as I caught a number of them before I caught a mirror; but, oh joy! what a beauty! It had rows that looked like scales as large as nickels, and such pretty colors! I caught one that was leather-colored, and had no scales that I could discover. There were also some fish that they call hybrids. Their father and mother were carp and goldfish. They are very pretty. I infer that carp and goldfish belong to the same family.

It takes work and care to raise fish, as well as bees. The trout are fed chopped beef twice a week; and when they were eating, it made me think of happy boys and girls at play. The carp are fed twice a week, too, on chop—corn and oats ground together.

The iron pipes conveying the water from one pond to another became clogged up, and a pump was screwed on, and water poured in; and by working the handle, soon a stream of muddy water poured out, and in a littte while the water ran out, clear and pure, and the pump was taken off. The fish, in their gambols while spawning, had stirred up the mud in the bottom of the water. Moss grows on top of the water in these ponds, and is taken off occasionally. They had a laugh at my expense, when I asked why they put "wool" in the ponds. When the moss has dried in the sun it looks like coarse white wool, but soon decays. A man with long rubber boots on runs the pipes occasionally, to keep the sulphur or other minerals from clogging up the holes in the pipes. Carp raised in these mineral waters have been eaten, and are of fine flavor. MRS. L. HARRISON.

Peoria, Ill., June, 1886.

THE FLORA OF LOOKOUT MOUNTAIN.

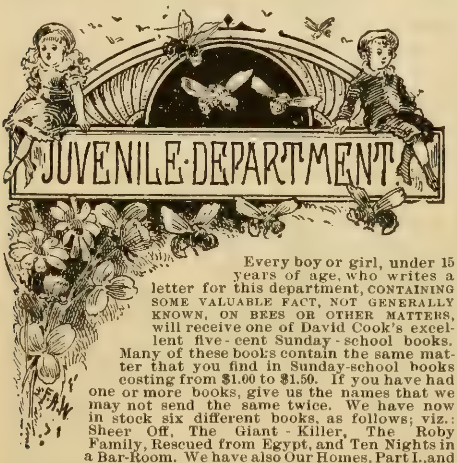
ARE THOSE WHO HAVE APIARIES UPON A MOUNTAIN FAVORABLY SITUATED?

FATHER had 6 stands of Italian bees last fall, and they increased to 11 this spring. The weather has been too wet for them to gather much honey and pollen; and owing to that, we haven't taken much honey from them. The azaleas, laurels, and purple rhododendrons, which grow wild on this mountain, have ceased blooming. The chestnut and sourwood trees are in bloom. The bees seem to be working very well on the red-root, which grows on the mountain-sides. The huckleberries, raspberries, dewberries, blackberries, and June, or service berries, are ripening.

GEORGE LAWSON, age 12.

Lookout Mountain, Hamilton Co., Tenn.

So you are located at Lookout Mountain, celebrated as the place where a battle was fought above the clouds in the late war. As you have represented near you several different elevations, each of which has its own temperature, I should like to ask you if your honey season is not prolonged in consequence of it; that is, doesn't clover begin to bloom first at the foot of the mountain, and, as the season continues to advance, bloom higher on the mountain? You know honey is first secreted from clover south of us, and the honey-flow gradually advances to the north with the season. Now, I have been wondering if there is not the same relation existing between the base of the mountain and the summit. The reason I speak of this is because the matter was mentioned by a writer recently, who has a mountain home, and who said that his honey season was prolonged. Is this the experience of others similarly situated? May we hear from such? ERNEST.



JUVENILE·DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

> "A chiel's amang ye takin' notes;
> An' faith, he'll prent it."

HOW TO AVOID STINGS.

DID you ever hear a bee scold? Perhaps you think he can't, but he can. After he has scolded for a while, talking pretty plainly, too, he will show you that he means what he says by, by—well, by something that hurts; you know what 'tis. If you have never heard a bee scold, just stand a few minutes in front of the entrance of a strong colony during basswood bloom when the bees are pouring into the hive heavily loaded. By and by you will see a little bee (one of the "sentinels," as we call them) twisting his head this way and that, as he surveys the proportions of the huge monster before his little doorstep. Pretty soon he flies up and buzzes back and forth before your eyes—possibly followed by two or three more of his companions, and then he scolds, telling you almost as plainly as I can that, if you don't get out of the way, he will use his little spear. I have heard them scold, and fancy he talks something like this:

"Now, look here, Mr. Elephant, or Man, whatever you call yourself, you are right square in the way. Haven't you got more sense than to stand here hindering us when there are dead loads of honey in the fields? There's not enough honey in the hive to winter on yet, and—just see the bees behind your great carcass, trying to find the door to our hive. If you don't get out of the way I'll stick you in the eye." About this time you will feel nearly cross-eyed, watching the little scamp, while his little voice sounds like a tiny buzz-saw sawing sections.

Now, perhaps the little bee doesn't say just these words; but at any rate he seems to think you have "no business" in front of the entrance, and that he will drive you off if it does cost him his life. So, little folks, I will say that, if you wish to save hard stings, I would advise you not to stand directly in front of the entrance.

Again, our honey season will soon be over in most Northern localities; and when the honey stops off suddenly, the bees will be apt to be cross for a while, especially if you are so careless as to leave bits of new honey lying around, or where bees can get at it by crowding through cracks. Wherever you keep surplus honey, *be sure no bee* can get at it, or you will be likely to have a terrible row, and no end of robbing and stinging. If your bees should get started to robbing during a dearth of honey you may be troubled the rest of the season. The old saying, "Prevention is better than cure," applies to robbing and stings; therefore, little folks, please be careful. When bees get to stinging badly, as they do when robbing has begun, you are liable not only to cause trouble in your apiary, but trouble with your neighbors, which may involve your papa in a lawsuit with them.

The time for you to learn to be careful is now, while you are young. Right habits in the apiary will be easily formed now while you are young, and you will never regret it when you grow older. ERNEST.

NOT GOING TO LET THE BEES SWARM.

I am a little girl ten years old. Ma caught a swarm of runaway bees last fall, and gave it to me. I built it up nicely. They are now trying to swarm, but I pinch off the queen-cells, and won't let them. I call my queen Taddy, and won't let her go again. I love to work with bees, but my big sister squalls every time one comes within one hundred yards of her. **JENNIE H. PARK.**

Concordia, Meade Co., Ky., June 10, 1886.

HOW TO GIVE THE BEES A DRINK.

My papa has kept bees for six years; he takes GLEANINGS. My mamma and sister and I came from Ohio last March. Papa brought his bees here three years ago. The bees out here do not make any surplus honey until after harvest. We have a wind-pump. Papa has a barrel full of water by the pump; he keeps a coffee-sack over it, so the water just comes up to the sack. The bees get on top to drink, and do not get drowned. When papa has queen-cells that he wants to save he cuts them out and puts them under little glass dishes over the other bees, so the cells do not get torn down, and they hatch out all right. **FANNIE GOSSARD**, age 8.

Friend, Salem Co., Neb.

HOW TO STOP ROBBING.

My pa has 20 swarms of bees; he does not get much honey, for he does not run for it. He sells his swarms. This spring he lost a good many swarms by the bees swarming out and trying to enter other hives, and then they get killed and lie on the ground. He has one swarm that makes a business of robbing, and the only way he could stop it was by taking a frame of brood from the others and placing it in the hive they were robbing, and placing the robbers in the place of the hive that was being robbed, and the other in the place of the robbers. He says that will stop the worst robbing. I don't work with bees, though I am not much afraid of them. MAY BELL HORN.

Flicksville, Pa., April 28, 1886.

Thank you, little friend. The way in which your father cures a swarm that persists in robbing is the same as the one given in the A B C book. It works "to a charm," doesn't it? ERNEST.

THE RESULT OF A QUEEN GETTING INTO THE WRONG HIVE.

Pa has five swarms of bees in chaff hives which he made himself. In transferring them into chaff hives the queen from one swarm went into the wrong hive, and we supposed she was stung to death, for we found her dead. Pa takes GLEANINGS, and has your A B C book, and would not be without it. ALMA NEWTON, age 11.

Stella, Vinton Co., O., June 15, 1886.

HOW BROTHER FRED MADE A SOLAR WAX-EXTRACTOR AND FRIED AN EGG WITH IT.

Brother Fred made a solar wax-extractor in the spring, and in March he tried it to see how it would do about melting wax. It does real well. He got some of the nicest wax with it I ever saw. He thought he would try to see if it would roast an egg, so he put one in a dish in the extractor about noon, and about the middle of the afternoon it was cooked — too hard to eat. We were going to have one to eat, but lost it, so we have not tried to roast any since then. Fred had one colony of bees swarm, and took 22 lbs. of honey off, and two 12-pound crates are on yet, and they have got those about half full. PERL Z. CRANSTON, age 14.

Woodstock, Champaign Co., O., June 22, 1886.

Tell your brother that he has done remarkably well. Now, if he or you either will give a clear description of how he made that extractor, so that any one else can make one like it, we will send him any thing he may choose from the 25-cent counter, and possibly we may do better than that even. If Fred's solar extractor will fry eggs, it certainly will melt wax; and I think we all want to know how it was made, as it is probably simple in its construction. Let us hear from you, so it can be published in next Juvenile GLEANINGS. You will remember that I fried an egg, but, like your egg, it was cooked so hard as to be unfit to eat. ERNEST.

MORE ABOUT BROTHER FRED'S BEES.

We have a little cherry-tree in our yard, that father was mowing around one day, and we noticed on the tree, right down close to the ground, that the bark was bursted, and quite a number of little roots were coming through. The bark was bursted in three places. It looks odd. We have about 80 little chicks and 23 goslings. Brother Fred's bees have swarmed four times. The first swarm that came out, Fred and Perl had just started out to work after dinner, and we rang the bell for them, and before they could get here the bees started off, and father stopped them by throwing cupsful of water on them while they were flying. I like to help hive the bees. Fred has ten swarms now, and they are all doing well, and we are expecting more any time. NETTIE H. CRANSTON, age 11.

Woodstock, Champaign Co., O., June 22, 1886.

You are sure, are you, that the water had the effect of bringing the bees down? ERNEST.

FROM TWO NUCLEI TO 12 COLONIES.

Pa made a new start last year with bees, by getting two 3-frame nucleus colonies of Italians from Hemphill & Goodman, of Elsberry, Mo. These nuclei increased to 12. Pa sold one swarm, and we let two get away. We had 9 to start in the winter. All wintered well on their summer stands. We have sold 3 swarms, and have hived 7 and lost several. Pa has some of the queens' wings clipped. We have some beautiful queens. I like to look at them. We have taken in all about 150 lbs. of honey this spring, and pa says he could take about 200 lbs. more right away if he had the time to do so. He makes his hives and frames himself. We use altogether the Simplicity pattern of hive, for pa thinks it is the best. We all like to read GLEANINGS. Pa says it has much of a Christian spirit about it that is good, and says that he is strongly in favor of uniting religious matters with bee-matters. We all esteem your Christian spirit highly. My letter has become quite long already. I wish to say before I close that I have one sister and three little brothers here, and two brothers gone to live with Jesus. I am the eldest living, ten years; my eldest brother living is named Ernest—a namesake of Mr. Ernest Root. ESSIE STAFF.

Moscow Mills, Mo., June 26, 1886.

BEES FLYING INTO THE NOZZLE OF THE SMOKER; HORNED TOADS.

When my father is at work among the bees, he sometimes smokes them away, and they have so much curiosity as to fly right into the nozzle of the smoker, and there are burned. My father has about 150 stands of bees. I have for pets, horned toads. They are rather hard to catch; and when I do catch them I bring them home and put them in a tin pail or bucket, and keep them a few days and then let them go. They can live a long time without any thing to eat. EDDIE BUTLER, age 12.

Los Gatos, Cal., June 19, 1886.

It it quite a common occurrence for bees, when enraged, to fly into the nozzle of the smoker. This is somewhat the way little boys and girls do when they are mad—they rush right into something that is sure to bring them to grief, without thinking or knowing the consequences. — Don't you think you are just a little cruel to keep the horned toads several days in a pail without any thing to eat. This I judge you do, as you say they will live a long time without food. We have one now in our apiary, which has been sent us by one of our friends. I presume it was in the mails nearly a week; but when it arrived it was very evident that it was quite *weak*. ERNEST.

WHY DID OUR BEES LEAVE?

Papa bought a stand of bees last spring, and from that he had five stands. He thought he could winter the fifth one; but the poor bees died, so he had four good stands this spring. On the 11th of April, two left, and their hives were full of honey. They went to our nearest neighbor's, and his bees killed all of ours, and on the 21st of April the third stand left. Please tell me why they left. Papa was sorry. He likes to work with bees and honey. The hives were all clean and nice when they left.

Frances Hemmerly.

Forest, Hardin Co., Ohio, June, 1886.

I can not tell why your bees left, friend Frances. It is a matter that has been much discussed. Sometimes they seem to get discouraged and swarm out because they are few in numbers. It seems to be a sort of mania some certain seasons. A few years ago we used to have a good deal of complaint of swarming out in early spring; but of late we have seen but very little of it. I think strong colonies are the best preventive.

HOW TO MAKE HONEY CANDY.

My pa takes Gleanings, and I like to read the juvenile letters. Pa has 50 colonies of bees, and he clips his queens' wings, and thinks he can hive bees a great deal better that way than any other way. I will tell you how we make honey taffy to make it look like store candy. We boil our honey until it is stiff enough to pull, then we pour it into greased pans and let it cool; then we take it out, dividing it, leaving part red, and take the other part and pull it till it is as white as we can get it; then we draw both the white and red out to the size of a stick of store candy, then twist them together, making striped candy; then lay it on a plate. Ma uses honey for almost every disease.

Forest City, Mo. Lizzie E. Purvis, age 13.

Thank you, friend Lizzie, for your simple recipe for making honey candy. I have no doubt but that it will make a very wholesome and nice confectionery—much better, indeed, than the cheap candies we buy. I think I shall have to get that queen clerk (I mean my other half) to make some, and I will then report how we like it. By the way, is it not a good idea to devise as many new uses for honey as we can? Our friend Muth, of Cincinnati, is getting honey introduced for mechanical purposes. Our friends Crawford & Taylor, the bakers, mentioned in another column, have succeeded in making what I call extra nice honey-jumbles. Our friend Arthur Todd, of Philadelphia, makes and advertises honey candies. You see, all these different uses for honey help to raise the price of it. Shall we not have more reports (get your mamma to help you) on how to make honey candies, honey-cakes, etc.?

Ernest.

SHALL WE KILL SWARMS TOO WEAK TO WINTER?

Two years ago we started with one swarm of bees. There were no swarms the first year. Last year we increased three and killed one that was not strong enough to go through the winter, and now we have 11. Two got away; all were by natural swarming.

Tilden, Ill., June 9, 1886. S. J. & Wm. M. Boyd.

Thank you, friends S. J. & W. M.; but why should you kill a swarm because it was too weak to winter? Why did you not do the best you could with it, and run your chances of its living through the winter? You see, you would have been so much ahead if it had survived.

NOTES AND QUERIES.

A KIND WORD FOR MRS. COTTON.

I HAVE received several letters from bee-keepers asking me if Mrs. Cotton ever sent me the colony of bees that she promised to send me this spring. She did. About the first of May I received from Mrs. Cotton a swarm of nice Italian bees in shipping-box, and I don't think they are inferior to Prof. Cook's celebrated strain, which is saying a great deal, for I have some that came from his apiary. I will tell what else was in that box. There was as fine a queen as I ever saw. I put them into the Controllable hive that Mrs. C. sent me last year. They have given me two large swarms, and are working in the sections, and gathered more honey than any other colony that I have; so, score one for Lizzie.

Hiram Adams.

Port Austin, Mich., June 28, 1886.

[We are very glad to get the above report, friend A. With the very large prices Mrs. Cotton charges for whatever she advertises, she certainly ought to give *good measure* and *good quality*, and we are very glad if she is beginning to do so.]

CONDITION POWDERS, EGG FOODS, CATTLE FOODS, ETC.

[It seems the Philadelphia *Farm Journal* looks at these things a good deal as I do. We clip the following from a recent number:]

We have no faith in condition powders, condimental foods, egg foods, and the like. They are all in the same boat with patent medicines. A poultry powder that sells for 50 cents a box was found by Prof. Jordan, of Maine, to contain 84 per cent of mineral matter, chiefly ground shells and a little bone, the rest being water and organic matter. A celebrated cattle food was found to be composed chiefly of wheat bran and corn meal, with a trifle of fenugreek, and a little sulphur. This was sold at 8 cents a pound.

DOES THE DRUMMING ON TIN PANS BRING DOWN SWARMS?

In the June 15th No. I see an article from J. J. H., in reply to which you say you would like to know if drumming on tin pans, or any noise that is produced to arrest a swarm of bees, does any good. I can tell you that any noise that may be made when a swarm issues, to drown the noise of the leaders of that swarm, will settle them on the nearest branch that is accessible. I have come to this conclusion from four years of experience in the bee-business. When I was there with my tin pans I always saved a swarm; when not, they were lost.

Samuel D. Bates.

Sikeston, Scott Co., Mo., June 15, 1886.

MRS. CULP TELLS US SOMETHING ABOUT HER NEW PUPIL.

Please accept thanks for the neat little compliment paid me by yourself and our brother "Just Hatched." Permit me to introduce him to you and the bee keeping brethren and sisters generally as our minister, the Rev. J. S. Rickets, of the Ohio Conference, hoping you will all extend to him the right hand of fellowship—I'm quite sure you will all feel quite proud of him when you form his acquaintance; for he is, in my estimation, a very precocious bee-keeper. Just think of his writing for the bee-journals before he is a month old! With his and wife's assistance occasionally, things are moving on grandly in the apiary.

Hilliard, O., July 1, 1886. Jennie Culp.

BE CAREFUL HOW YOU DRIVE HORSES NEAR TO BEE-HIVES.

[The following comes as an additional warning to what has already been said:]

On the morning of the 9th inst. I lost a valuable family, saddle, and harness horse—stung to death by bees, caused by the neglect and disobedience of a hired man. He drove the horse with a loaded cart into an apiary of forty hives, but he did not turn as instructed. An effort was made to move the horse, but it could not be done until he had upset two hives, moved others and turned the cart over. The horse was removed by my wife and neighbors, and every effort was made to counteract the poison, but in vain. He died in two hours, of fits. J. A. SMITH.

Elora, Lincoln Co., Tenn.

JUST COMMENCED TAKING OFF HONEY.

I thought I was too poor to take GLEANINGS any more, but I find I can not do without it. I commenced the campaign with 52 swarms of bees. I have just begun taking off honey, and have taken off, up to date, about 300 lbs. The most of our honey is raspberry. SIMMONS WARFLE.

Tracy Creek, Broome Co., N. Y., June 11, 1886.

A B C OF POTATO CULTURE TO BE PUBLISHED IN THE SWEDISH LANGUAGE.

Mr. Stalhammar, editor of the *Swedish Bee Journal*, Gothenberg, Sweden, writes for a copy of "Winter Care of Horses and Cattle" *as soon as it is out*. He is intending to publish "A B C of Potato Culture" in Swedish. T. B. TERRY.

Hudson, O., May 5, 1886.

PERFORATED ZINC.

The sample of perforated metal is received. The perforations are too large for my purpose. I have several of Alley's queen-traps which have the same sized perforations as the sample sent. The principal purpose which I make of the traps is to capture the queens of second and third swarms; but I find that, while they will catch all old or laying queens, they will not do so with all young ones, many getting out and going with the swarm, but I think they could not do so with the smaller size of perforations.

East Key, N. Y. O. M. WHITCOMB.

[Are you sure young queens can get through the perforated zinc we sent? We selected some of the smallest queens in our apiary, but we could get none through it; see page 424.]

Tobacco Column.

HAVING noticed in GLEANINGS that you are offering one of your bee-smokers to every one who will agree to quit using tobacco, and not knowing whether I am entitled to one, I thought I would state my case to you, and see if you think I ought to have one. I had used tobacco for 6 years, and had tried to quit once before, but failed; but I am glad to say that at present it has been 16 months since I took a chew of the weed, and I feel safe in promising to pay you well for the smoker if I ever use the weed in any form again. If you think me worthy of a smoker, I shall take it as a favor. W. L. BANTA.

Valley Spring, Tex., April 28, 1886.

Friend B., our offer of a smoker is to those who give up tobacco because of what has been said in GLEANINGS in regard to it; but as you give us the usual promise, we have sent you a smoker to kind o' clinch the bargain. Now, you see if you ever put another bit of tobacco in your mouth it will cost you just 70 cents.

I received the smoker you sent me. I was very much pleased with it, and am much obliged. If I ever commence the use of tobacco again I will send you your dollar. C. H. MARTIN.

Lee, Allegan Co., Mich., June 4, 1886.

I certify on honor that I have abandoned the use of tobacco, and desire your promised boon. I also certify on honor that I will pay for the smoker if I ever commence the habit again. W. W. WOOD.

Wallaceburg, Hempstead Co., Ark., May 21, 1886.

ONE WHO IS 24 YEARS OF AGE QUITS, AFTER HAVING USED TOBACCO FOR EIGHT YEARS.

After using tobacco for eight years I have quit, and expect never to use it again, although I am only 24 years old. If you think I deserve a smoker, please send me one; and if I take up the habit again I will pay for the same. JOHN W. WRIGHT.

Cass City, Tuscola Co., Mich., May 1, 1886.

My friend E. C. Kitchens tells me that there is due me a bee-smoker, as I on the last day of last December quit using tobacco, with the intention of never chewing or smoking any more. I have been chewing tobacco nearly all my life. I am 47 years old, and a native-born Texan. I make the usual promise to pay for the smoker, if I break the pledge. J. A. ISAACKS.

Brownwood, Tex., April 9, 1886.

THE GOOD EFFECT THE TOBACCO COLUMN IS HAVING UPON OUR READERS.

I have seen that so many have quit the use of tobacco who read GLEANINGS, that I have also given it up after using it over 20 years. I am determined to quit for good by the help of the Lord. If you think me worthy of a smoker you can send me one; and if I ever use tobacco again I will pay you for it. GEO. W. BECKHAM.

Pleasant Hill, Lanc. Co., S. C., May 10, 1886.

A THIRTEEN-YEAR-OLD BOY WHO HAS USED TOBACCO FOR FOUR YEARS, HAS NOW QUIT.

I see in GLEANINGS that you give a smoker to everybody who quits the use of tobacco. I have one hive of bees, and am 13 years old. I have smoked and chewed for 4 years, and have quit. Please send me a good smoker; and if I ever use tobacco again I will send you the price of the smoker twice; but I hope I shall never use it again. STACY NAYLOR.

Beloit, Mahoning Co., O., May 12, 1886.

BY THE HELP OF GOD, WILL CONQUER THE HABIT OF USING TOBACCO.

I like your A B C book and periodical well. Please don't send me a smoker, for it would bring up unpleasant recollections of repented and forgiven sin; yet accept my thanks for your kind interest in me and my fellows in tobacco guilt. I have reformed entirely, and have induced Rev. S. T. Williams, of Philadelphia, N. Y., to quit. He burned his tobacco and pipe, and dropped on his knees with me, for help from on high to enable him to conquer the world, the flesh, the devil, and the *weed*. The bee-men of this locality are scarce. T. HOWLAND.

Clayton, Jefferson Co., N. Y., May 8, 1886.

My pa began to read GLEANINGS last fall, and on Christmas day he quit the use of tobacco. I have one stand of bees. If you will send me a smoker I will send you the price of it if my papa begins to use tobacco again. He says he will never use it any more. GILMER R. HOUCHINS.

Pipestem, Summers Co., W. Va., May 17, 1886.

HERE IS THE RESULT.

I received my smoker, and my pa received his "Dose of Truth." He thinks it a grand document. His weight last Christmas was 175 pounds. Since he has quit the use of tobacco he has gone up to 207 pounds. His friends say he will have to commence it again, but he says, "No, *never*."

GILMER R. HOUCHINS.

Pipestem, W. Va., June 7, 1886.

That is the kind of talk, friend Gilmer. Tell your father not to take up tobacco again, even if he should weigh half a ton.

TWO MORE WHO TAKE THE PLEDGE.

Giving up tobacco has become so much of an established fact that a couple of men recently came into our store, asking for smokers, saying they were going to give up tobacco, and were willing to have their names published; and if they ever use it again, they will pay for the smokers. The names and address are as follows: Alex. McKee and U. B. McIntyre, Hinckley, O.

KIND WORDS FROM OUR CUSTOMERS.

I have received the labels, and am very well pleased with them, both as to quality and price. Thanks.
Anaheim, Cal. ALFRED W. HINDE.

I have received the goods I ordered of you. They gave perfect satisfaction. The sections were the finest I ever saw. W. A. ANTHONY.
Sasser, Terrell Co., Ga.

My foundation came to hand June 19th. It was the best I ever had. Please accept thanks for your kind and prompt attention. MRS. M. A. WILKINS.
Seneca, Nemaha Co., Kan., June 22, 1886.

I received sections and other things in good order. I am very much pleased with them. I will order some more soon. HENRY WALTER.
Orange, Orange Co., Tex., June 22, 1886.

I received the $1.00 queen from you some time since. I introduced her in a hive of black bees; when her eggs hatched I found they were very bright pure Italians. I am very much pleased with her. C. MOORHOUSE.
Hibernia, Fla.

Wife says we enjoy the Home Papers very much, and wishes you may be spared to give them to us for many years yet. You see I have put it *we*, because I agree with her, and feel that GLEANINGS would lose a great charm, and that its power for good would be lessened very much by the omission.
McMinnville, Ore. FRANK S. HARDING.

PROMPTNESS.

The imported queen came to hand June 2d. I introduced her at half-past 6 P. M., on the same day. To-day, June 3d, at 3 P. M., she has laid over 200 eggs. How is that for introducing imported queens? Thanks for promptness. I did not think you would receive my order in that short time.
La Salle, Ill. THOMAS GEDYE.

OUR CAREFUL PACKING.

The goods came in good condition, and were quite satisfactory. When I deal with you, friend R., I am never fearful that, when my goods come, they will be carelessly put up, and consequently damaged on arrival; and when I see them I feel like exclaiming, "Oh! if everybody would be as careful, how much pleasure and benefit it would amount to in the world." JOHN S. WOMBLE.
Oviedo, Orange Co., Fla., June 24, 1886.

I received goods shipped by you. The order was correctly filled; goods came in fine order. I am well pleased with every article and style of packing—so much so that I expect to give you my entire patronage in the future. W. F. COOPER.
Itasca, Hill Co., Texas, June 6, 1886.

WELL PLEASED WITH OUR BEES.

I received the bees June 12th all right. I am much pleased with them. Many thanks for the extra frame and the amount of bees you sent. Your mode of shipping is all right. I am well pleased with the A B C book. I hope I may have success. To-day, June 18, they are working finely.
Woolwich, Pa., June 18, 1886. F. T. RAHORN.

PERFECT SATISFACTION.

Your goods on both shipments came all right, and were of good quality. I could get them nearer; but I am so well pleased with my deal with you that I do not see the place to break off, and the goods give perfect satisfaction. JOSEPH SWIFT.
State Center, Ia., June 11, 1886.

OUR TEN-CENT HONEY-KNIFE.

It may not be amiss to tell you that your little ten-cent honey-knife, which cost fifteen cents by mail (and none of my friends guessed a less price than 25 cents) proves itself a great convenience. It is little, if at all, inferior to the longer and more expensive patterns. DAVID STRANG.
Lincoln, Tenn., June 22, 1886.

I think the California honey "takes the cake"—perfectly magnificent, but a great many don't like it. J. M. JENKINS.
Wetumka, Elmore Co., Ala., June 17, 1886.

[Friend J., it is a little singular that we have so many reports just about like yours. A good many people think that California honey is "magnificent," as you say; but, strange to add, others don't like it; and, as you say, those who "don't like it" are "a great many."]

G. M. DOOLITTLE'S OPINION OF TERRY'S NEW BOOK.

Terry's "Winter Care of Horses and Cattle" is at hand. It is a book that should be in the hands of every person in the land. With many, the height of their ambition seems to be the largest numbers with the least attention; in others, a poor old horse — so poor you can count every rib 50 feet away, to push and spur through every day.
Borodino, N. Y. G. M. DOOLITTLE.

GLEANINGS AS AN ADVERTISING MEDIUM.

I ordered a select tested queen of you, May 24. In eight days she was here, and in the hive. On the ninth day she was laying. That is business on time, I think, from North Carolina to Ohio. I am well pleased with the Buckeye window-sash lock. How was the candy made that was with the queen—all sugar, or not? When made of honey and sugar, do you dissolve the sugar in water, and how long does it take to cook it? I got into business by inserting an advertisement for black queens, in GLEANINGS. Orders came from all over the Northern States till I had to say stop. I am Italianizing all that are in reach of me; and as fast as I can find hybrid queens, the friends can have them.

W. P. DAVIS.

Goodman, Anson Co., N. C., June 12, 1886.

[The bee-candy is simply honey and powdered sugar made into a stiff dough. See A B C.]

TERRY'S NEW BOOK.

[The kind notices of this little volume are at hand by the hundred. We select the following from among them:]

"The Winter Care of Horses and Cattle," is the title of a pamphlet from the pen of T. B. Terry, "so well known as an able writer in the agricultural papers, as well as a 'live man' at our agricultural Institutes." This very humane and Christian work should be in the hands of every one who owns or drives a horse or provides for the wants of domestic cattle. The reading of the book will undoubtedly increase the number of merciful men and women, and assist largely in promoting righteousness in the earth. Every thing connected with the prosperous management of these animals,—the shelter, feeding, watering, etc., etc., is illustrated in the most careful manner.—*The Manifesto, Shaker Village, N. H.*

OUR HOMES.

What doth the Lord require of thee, but to do justly, and to love mercy, and to walk humbly with thy God?—MICAH 6: 8.

HAVE you ever wondered, dear friends, why it was necessary to have so much discussion in regard to the way a Christian ought to live? If all these things are really important, it would seem that one almost needs to have a theological education in order to be able to live a Christian life. Yet we know this is not so; for Jesus accepted and pardoned the lowliest and the humblest, and many of the most illiterate. Do we not sometimes make a mistake in encouraging the idea that it is a very hard thing, or a very difficult thing, to understand just how we should behave and act, to be followers of Christ? Is it not possible that we are troubling or worrying ourselves over things that are, after all, of no very great importance? In the verse just before the one containing our text the prophet asks, "Will the Lord be pleased with thousands of rams, or with ten thousand rivers of oil?" The answer is given in our text. The words before the text are these: "He hath showed thee, O man, what is good;" and then follow these simple little directions — "Do justly, love mercy, and walk humbly before God." Surely the veriest child among us knows how to do this; but suppose, for instance, he does not. Suppose the one who wants to be a Christian is so young or so ignorant, or that his former educational surroundings have been so faulty, that he has false ideas of justice—what then? Well, my opinion is that the *will* will be accepted in that great day for the deed. I am sure that no honest, penitent child will ever be cast out when he was doing the best he knew how. Perhaps no one will dispute this. If so, then the question comes up to all of us, Are *we* doing the best we know how? Did you ever think of the readiness with which the world in general answers this question? The inmates of our prisons almost invariably say, when you sit down beside them, and have a frank, friendly talk, that they have been doing the best they knew how. If they told the honest truth, it seems to me they ought to say, "I meant to do right, but I allowed myself to be prejudiced;" or, "My mind was so much taken up with something else that I did not give the matter the attention that I ought to have done." If he has the real genuine spirit of Christ in him, I should like to hear him add, "I have done wrong; and if you will tell me how I can right the wrong, I am ready to do it."

In our recent Sabbath-school lesson I have been greatly interested, or, rather, I have made it a point of study, to see if there is any chance for those who refused to accept Jesus, to make the plea that they were "honest doubters." When he opened the eyes of him that was blind from birth, the Pharisees were displeased. Instead of rejoicing that a prophet, or even a physician, was among them, with power to perform such cures as this, they objected and found fault. First, they refused to believe that he was the man who sat and begged; and when he himself declared, "I am he," they were not satisfied. They sent for the parents and questioned them about it. But even the poor parents were so blinded and bigoted, or cowardly (I can not make out which), they were backward, and evaded the question by saying the young man was of age, and that he could answer for himself. Finally they began to find fault, and to say that this prophet was not of God, because he healed the man on the Sabbath day. The observance of the Sabbath day, according to their formula, was a matter of so much greater importance than giving sight to the blind that they ignored the miracle, and said, "This man is not of God, because he keepeth not the Sabbath day." Does it seem possible that men could become so bigoted and contrary as to use such reasoning as this? Long before this they complained that he did not observe the Sabbath day according to their code; but he answered them, "The Sabbath was made for man, and not man for the Sabbath." At that same time he healed the man with the withered hand; and we are told they were watching him, ready to take it up against him in case he should perform a miracle on the Sabbath day. He silenced them, however, by propounding a question which their own consciences would not permit them to answer untruthfully — "Is it not lawful to do good on the Sabbath days?" Geike, in his Life of Christ, tells us they had a law forbidding work on the Sabbath, unless it was to save life. According to such a code, suppose that a man had a toothache on Sunday, he must grin and bear it, for it would be breaking the Sabbath to go for a doctor or a dentist. And while we are on this matter of the Sabbath, are we not some of us in this nineteenth century in danger of making an idol of the Sabbath day, and bowing down to it as did the heathen in olden time to their senseless idols?

The question is before our nation just now —What shall we do on Sunday? I believe pretty nearly all agree that it should be a day of rest for man and beast. Many would go still further and add the word "recreation," making it a day of rest and recreation. If farmers who live in the country go to church on Sunday, they must use their horses; and there are some who say that, after their horses have worked hard during the week in plowing, or in haying and harvesting, they, too, ought to rest on the Sabbath. I am afraid that just a little of the leaven of the Pharisees is getting in here. Usually there are horses enough on the farm to take all the family to church, without being very heavily burdened; that is, where churches are at a moderate distance from our homes, as they always should be. If the horses are properly cared for during church time—put in comfortable sheds, for instance — I do not see why they can not rest as well as if left standing all day in the stables at home. In connection with this event Christ gave us a little text that has always been a comforting one to me. He said, "Wherefore it is lawful to do well on the Sabbath days." He said this in connection with the question about a sheep, if it should fall into a pit on the Sabbath day. The first commandment is against idolatry. Did it ever occur to you, dear reader, that we may be in danger of worshiping the Sabbath in a senseless way? Jesus never laid down a law without sense. In heathen lands, where they are in the darkness of superstition, they have their "taboos;" that is, laws are laid down in a senseless way. Physicians used to doctor people by giving them the liver of a frog or a piece of a serpent's skin; a cold in the head was cured by kissing a mule's nose. Frogs boiled in vinegar cured the toothache. While enumerating these, I have wondered if there were not some tincture of this taboo of heathenism still lingering among us.

Now, there is nothing about religion and nothing in Christ's commands, that is, in any shape or manner, the slightest akin to such superstition. God surely never intended to lay stress on something that had not reason and sense back of it. God must be just, or he would not be God. Earthly rulers may put burdensome commands upon us, and may punish us for breaking such laws; but God the Father never did. Is it possible that a kind and just parent should ever lay down laws for his children, simply for the sake of punishing them when they break his laws? Surely not.

A few days ago we were led to believe that the Postoffice Department of the United States had purposely made a ruling that queen-bees might pass through the mails, and that the ruling was to be literally carried out. A queen could go, and nothing but a queen; not even a single worker to go along as company and to feed her. I said at once that I did not believe it possible that the men whom we have occupying high offices could for a moment intend any such ruling. If they did it would be something like this: Suppose our great men at Washington should meet together in making laws for Uncle Sam's subjects, and should discourse in this way: "Oh, yes! there is that miserable lot of bee-men who are petitioning for the privilege of sending queen-bees through the mails. Now we will just play a trick on them. We will make a ruling, permitting queen-bees only to pass through the mails, and then we will instruct the postmasters, through the Postal Guide, to refuse every cage that has a worker-bee in it. We will tell them to throw them out or hold them until they starve to death. We will destroy so much of their property in this way that they will never want to come to Washington again." Now, suppose they laughed and jeered, and had a big time of it, to think of the wail we would send up at the loss of our property. Are we under such rule as that? Why, to be sure, we are not. The idea is ridiculous. Ancient kings may have had the power, and possibly the inclination, to grind down and harrass their subjects in this kind of a way. But *we* are a Christian nation; a just God rules over us; and the thought that God could lay down laws for us, his children, in any such way, is to me the worst kind of blasphemy. You will notice on page 537 some remarks in regard to this matter. To show you that my faith in this government and its postoffice officials was not misplaced, I take pleasure in submitting the following:

> POST OFFICE DEPARTMENT,
> *Office of the Gen'l Supt. of R'y Mail Service,*
> WASHINGTON, D. C., June 29, 1886.
>
> *A. J. Cook, Esq., Agricultural College, Mich.*
>
> SIR:—Yours of June 24th, regarding a modification of the postal regulations admitting queen-bees to the mails, has been received, and I am happy to inform you that this regulation will be so modified in the next monthly Postal Guide as to read, "Queen-bees with necessary attendants."
>
> The question as to the dispatch of queen-bees to Canada has been referred to the Superintendent of Foreign Mails. Very respectfully,
>
> JNO. JAMESON, *Genl. Supt.*

You will notice that it was a prompt reply to Prof. Cook's inquiry.

Here is another, sent to the Hon. Edwin Willits, President of the Agricultural College, Michigan, which is interesting to us, inasmuch as it also touches on the matter of sending queens to Canada. It was sent to me by the kindness of Prof. Cook:

> POST OFFICE DEPARTMENT,
> *Office of the Gen'l Supt. of R'y Mail Service,*
> WASHINGTON, D. C., June 28, 1886.
>
> *Hon. Edwin Willits, Agricultural College, Mich.*
>
> SIR:—I have the honor to acknowledge receipt of yours of June 23d, regarding the admission of queen-bees to the mails *with attendants*, and I am pleased to be able to inform you that the regulation will be modified in the next monthly Postal Guide so as to read, "Queen-bees with necessary attendants."
>
> In regard to forwarding queen-bees to Canada, this office, of course, has nothing to do. I see no objection to the postmaster at the mailing office receiving them for such dispatch; and if the Canadian authorities see fit to receive them, this office certainly has no objection. This question has been referred to the Superintendent of Foreign Mails.
>
> Very respectfully,
>
> JNO. JAMESON, *Genl. Supt.*

May God grant that peaceful and Christianlike relations may exist between Canada and the United States in the interchange of queen-bees, as well as in every thing else!

Now, friends, do you not see what a sad thing it is to lose faith in our own government? and this includes faith in those who occupy high official positions. And is it not, too, a thousand times sadder to lose faith, or to lack confidence in God, the great Father of us all? When we allow ourselves to believe for a moment that he has laid down laws for us that are not easily understood or comprehended, and that terrible judgments shall follow the consequences of even ignorant trangressions, do we not belittle ourselves, and forget the opening words of the prayer the Savior gave us—our Father who art in heaven? What is it, then, the Father wants of us? Why, simply what is expressed so plainly in our little text—do justly, love mercy, walk humbly before God. Very little question need arise in regard as to what is doing justly. Where a man is not straight and honest in deal, even a child, or one of no education, will detect it. How often we hear the words, "Is that fair or Christianlike?" and when the circumstances are submitted, there is usually but very little difficulty in getting a unanimous reply. If it is a question that involves complications, settle it by arbitration. Let each party tell his story, and then let some good man or woman decide whether it is fair or Christianlike.

Now, in regard to the second command laid down in our text—love mercy. Is there any difficulty in understanding what the prophet means by this? Of late I have been linking this word mercy with Christ's words I have spoken about it, bidding us to do good on the Sabbath; also, "A merciful man is merciful to his beast." I like to go around on Sunday morning, and see that the chickens have every thing pleasant and comfortable. I love to caress the mothers that have lots of chickens. One of my Brahmas finally hatched 13 out of 14. She is only half Brahma, and so she is not so clumsy and awkward. She used to be very shy, but now we are excellent friends. I love to make friends with the horses Sunday morning too. Then I love to fill the big stone watering-trough in front of the factory, so all the horses that pass by during the day may have a drink. Yes, I love to see the bees sipping the water down by the brook.

A few days ago a man with a big team passed by our watering-trough. The horses quickened up at the sight of the water, and by the motion of their lips showed how thirsty they were. But he yelled at them to go on, and hit them with the whip. Their ears dropped back, and they looked disappointed and weary. The thought occurred to me of trying to make him stop and water those horses; and it was not until after he had got quite a distance past that I remembered that I was President of the Society for the Prevention of Cruelty to Animals, for the town of Medina. I am afraid I am a rather poor president. Of course, it is of more importance to look out for suffering humanity, rather than for the suffering domestic animals; but in our locality humanity seems to be so well cared for, especially as far as food and drink and clothing are concerned, that I have not thought so much about it.

Now we come to the last clause of our text. What is it to walk humbly before God? Well, I think almost any child might answer this question. The friend in jail told me recently that he had nothing to thank God for in the way of giving him an existence. He said he had never felt it to be a favor, and that God could take away his existence as soon as he chose—the sooner the better. This surely is not walking humbly before God. Walking humbly before God is, as I understand it, letting God rule—thy will, not mine be done. You may say, if you choose, "I can not just see why God put me here in this world to endure pain, affliction, and sorrow; but as I am here, and by his order, I am going to say, 'Praised be his holy name.' I am going to obey him so far as I know how, and I am going to make the best use I can of the powers he has given me. I am going to strive to honor and glorify him in all that I am and all that I do. I am going to let thoughts of him come first and foremost, and in place of every thing else. I am going to strive against selfishness and pride; against stubbornness and ill temper. I am going to be his child, and he is to be now and evermore my Father."

When I was studying the subject of becoming a Christian, years ago, I went to the pastor of the church where we usually attended. I had got it into my head that, to become a Christian, I should have to debar myself from many things, and must become cramped, or under bondage, as it were, to fixed rules and laws. To my surprise, he stated that most of the things I mentioned were more matter of opinion than any thing laid down by church creed or by the Bible; and in reply to my questions he stated the few essential things needed.

"Why, Mr. Reed, is it really true that this is all that is required?"

"It is all, as I understand it, Mr. Root."

I can not remember now, but I think the conditions he mentioned were pretty much the same as our text to-day—do justly, love mercy, walk humbly with God. As I started to go home, after having knelt with him in prayer, and promised before God to do the best I knew how to follow Christ, it seemed as if the greatest freedom and liberty that I had ever known before was spread out before me. All the barriers were removed from every thing that I wanted to do; for I was, once in my life, free from the bondage of sin, and walking in the broad sunshine of God's great love to his children.

OUR OWN APIARY.

REVERSIBLE FRAMES; ROBBING, AND HOW TO PREVENT, ETC.

OUR reversible wire Simplicity frames are still giving us excellent satisfaction; and the more the boys use them the better they like them. As I now see the advantages to be derived from their use, I wish all our frames were reversible. I do dislike to see combs built within a half-inch or so from the bottom-bar, or holes eaten around the lower end of the brace-wires. Such combs not only look badly, but are more liable to make the top-bar sag, unless a folded tin bar is used for a brace. They give us less space for brood and honey, and are more liable to break down during shipment than where combs are built out solid, as is accomplished by reversing. We now have secured some beautiful solid sheets of combs by it. Said combs look as if they might stand shipment without a single wire, though I hardly think it would be policy to ship them thus. However, it does seem to me that when combs are reversed they will need less feet of wire to the frame.

In the present issue, Mr. Heddon is of the opinion that, were we to try his reversible L. frame on a large scale, we would like it better. While his frame would reverse a little quicker, perhaps, I should have this objection to it; namely, that it has the wood corners, which I never liked in any frame. I suppose the ordinary tin corner could be attached to the Heddon L. reversible frame. If I can get to it I mean to try a few of these frames made on his plan for experiment, though I hardly see how any thing could be simpler than our reversible corners, or less liable to come in contact with brace-combs or propolis.

DOOLITTLE'S METHOD OF FORMING NUCLEI.

Further experiments upon the Doolittle plan of forming nuclei have not been so favorable. In fact, many of the *old* bees in that nucleus (see p. 551) which I thought were successfully domiciled in their new quarters have since disappeared, and I suppose went back to their old quarters. Another nucleus was formed in exactly the same way, as recorded on page 551. When the bees were removed from the cellar, and put into the hive the following morning, their weight was two pounds and a quarter. On the morning of the second day the bees were shaken into a cage, and weighed. The result showed that the nucleus had lost a pound and a half of bees. Surely a part, at least, of these bees must have gone back to their old location. On looking into the hive afterward, although their numbers seemed depleted somewhat, I should hardly have supposed, judging from the looks only, that they had suffered such a loss. Some of the old ragged-winged bees were there, and are still there, showing that these old bees do not always go back, though it would appear that a large majority do.

I conclude, then, that, to correctly report upon the Doolittle plan of forming nuclei, the bees must be weighed before and after being moved. Had I done so in the first experiment, the results might have been similar to the last. The plan works nicely for introducing queens; that is, so far as tried; but from my present experience I should say that nearly half of the bees go back to their old location. Perhaps friend Doolittle can inform me why I have seemingly failed upon further experiments.

I will say this much, however: In experiments which we have made in forming nuclei in the ordinary way (i. e., taking frames and adhering bees from several different hives and uniting them into one swarm in a new location) we found that not a single ragged-winged bee would stay, though at least half the bees of the new-made swarm were of this latter class. With Doolittle's plan we did succeed in making a few, at least, of these old fellows stay at their new location.

ROBBING—A CAUTION TO BEGINNERS.

Our honey season has stopped suddenly off with us, and, in consequence, the bees are a little inclined to be cross, and rob. As many of our colonies are nuclei, we have to exercise extra precaution when opening and examining into the same. We are contracting the entrances of all such, and the boys are keeping a close watch of the whole apiary besides. When bees once get started to robbing badly at this time of the year we do not recover from the effects of it for the whole season; that is, when the little scamps have once learned the trick of thieving they do not seem to forget it soon. Beginners especially, need to be careful.

PUTTING A PANE OF GLASS IN FRONT OF THE ENTRANCE WHEN ROBBING HAS COMMENCED.

Seeing it recommended in the *British Bee-Journal* of the last issue, that an ordinary pane of glass placed in front of the entrance of a robbed colony would stop robbing, I determined to try the plan on some nuclei where a few straggling robbers were trying to gain entrance. These nuclei had just been opened, and, as usual just at this time of the year, robber-bees were around; and when the hives were closed they would pounce down upon the entrances, where the little lovers of home met them in hand-to-hand fight. Panes of glass were leaned against the front of two or three of the hives. The result was quite satisfactory; the robbers would either bump their heads against the glass, or, seeing their own image reflected against them, appeared to think that they were met by their enemies on the wing. Not many of them had sense enough to go around the edges of the glass; and the few that did, finding themselves inclosed, buzzed up and down the pane of glass on the inside, and finally dropped in front of the entrance. Here the inhabitants made short work of them. Very soon the robbers came to regard that entrance with evil forebodings; and when the glass was taken away they did not seem to know the difference. As to whether the glass will stop a bad case of robbing at the entrance when the inmates of the hive have given up in despair, I have my doubts; though the plan, if taken in time, might *prevent* robbing in a great many cases. ERNEST.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JULY 15, 1886.

If any man walk in the day, he stumbleth not.—JOHN 11: 9.

THE FAVORITE PACKAGE FOR 100 LBS. OF EXTRACTED HONEY.

THE new square tin honey-cans are having quite a boom, and we are glad to see them going off thus, because we believe it is the best package for storing and shipping extracted honey we ever offered for the money, and we feel assured they will take well. If you haven't seen them, send 90 cts. and we will send you a pair of the cans, boxed, ready for shipment. As many of you have large quantities of extracted honey, it is time for you to be thinking of putting it in some suitable package.

CARNIOLANS AND THEIR MARKINGS.

I FIND that I made an error in a recent issue, stating that Carniolan worker-bees from our best queen received from Frank Benton were some of them yellow-banded. One of them produced part Carniolan workers and part workers having some of the yellow bands. We thought last fall the other Carniolan queen did the same thing; but at present we find no yellow-banded bees among the young bees just hatching out. There are Italian workers through the colony, but these probably came from adjoining hives. I am very glad to make this correction. The progeny of this Carniolan queen are, however, so near like common black bees that, when these common bees are flitting about the hive, trying to rob, we find it very difficult to tell one from the other.

REDUCTION IN THE PRICE OF SECTIONS DURING THE FALL OF 1886.

FOR the benefit of the prudent ones who may wish to purchase their sections this fall for next season's use, we have concluded to name the following very low prices for large orders; viz.: Regular Simplicity sections, $4.00 per 1000; 10 or more thousand, $3.50 per 1000; 100.000 or more, $3.25 per 1000. This will give supply-dealers a chance to be fully prepared for next season's orders, and will also give them a good fair margin for handling and paying interest on their money. We are also prepared to give low figures on almost every thing else to be ordered between now and the first of January for next season's use. We do this in order that we may keep our regular hands, instead of dropping them until business shall commence again. I would say, however, this reduction in the price of sections applies *only* to regular one-pound *one-piece* 4¼×4¼ sections. One-pound four-piece sections, either dovetailed or nailed, will remain at the old price, $4.50 per 1000. Odd sizes, up to 66 cubic inches, $5.00 per 1000. No order taken for less than 500 of an odd size.

A WHOLE YEAR OF GLEANINGS FOR ONLY 15 CENTS.

In looking over our stock of back numbers of GLEANINGS we discover that we have about a thousand bound volumes for the year 1876 still left. Each volume is securely bound with two brass clasps, and a complete index makes the whole convenient for reference. To reduce this stock we have concluded to dispose of them to our customers for the very low price of 15 cts. each, or 10 cts. additional when sent by mail. In this year you will find articles from the pens of Langstroth, Katie Grimm, Adam Grimm (who, with the money he made of his bees, established a bank), and a host of others whose active brains still live in the pages of these back numbers. On page 52 of this volume is an article written by "Novice," when he had the bee-fever, telling "How to Do Every Thing that Needs to Be Done with a Colony of Bees." In short, it is the A B C of bee culture in a nutshell. This article alone will be well worth the price asked for the whole volume to the beginner, as it covers all the questions that he would be likely to ask. On page 274 is described, by the aid of diagrams, how to make the chaff hive. All through the whole volume "Our Own Apiary" is full of practical hints.

RUBBER STAMPS FOR PUTTING THE NAME OF THE PRODUCER UPON SECTIONS OF HONEY.

Now that the honey season is about over, and the comb honey ready to come off, our friends will need some ready means of labeling their section honey. We keep and advertise labels suitable for the purpose; but the chief objection to this method of marking honey is the labor involved. Moreover, the producer could hardly afford to paste labels upon a ton of section honey, and a label pasted upon the clean white surface of a section does not, to our notion, really add to its appearance, although it will "set off" honey in jars or pails, and comb honey in pasteboard boxes. To meet the requirements of some cheap and rapid means of marking sections, the manufacturers of rubber stamps have made for our trade some very pretty designs of their work expressly for stamping the surface of sections. What can be more neat and tasty than the producer's card artistically lettered in red ink, stamped right upon the clean white surface of the basswood section itself? The freshness of the wood marked in this way produces an effect that can not be accomplished with paper and paste; moreover, the producer's card upon every section is a guarantee of itself that the honey is pure; and when the honey is extra fine, the consumer, whether he purchases much or little, knows right where he can obtain more of the same brand—a means of advertising of no small consequence. Why, I believe I should like the fun of stamping my name upon some of my own honey that I was choice of. We can furnish you a stamp of this description, packed in a neat tin box, necessary pads, and ink included, for $2.00, postpaid, or the same a little fancier, for $2.50. Send for our rubber-stamp circular, free on application, and you can then pick out the design you want.

THOMAS HORN, OF SHERBURNE, N. Y.

THE first advertisement sent us by this individual appeared in our issue for Aug. 1, 1885. He there offered very low prices on queens, in order to introduce his strain of bright Italians. A sample nucleus was sent us some time last fall, to let us see what we thought of his bees. Of course, they were very fair; and as his postmaster and banker seemed to consider him an energetic, go-ahead man, we continued his advertisement until June 1, of this year. At that time we declined inserting it any longer until he had straightened up complaints. Of course, Mr. Horn might have had so many orders that he was unable to fill them all; but with many orders, of course comes much money; and he certainly should have returned the money when he found himself unable to fill the orders—at least, so to seems to me. The operation seems to be a good deal of a repetition of the Herbert A. Burch swindle. If I am doing Mr. Horn an injustice, I stand ready to correct it any minute when he returns the money or fills the orders. Filling orders (for which cash was sent before the honey season opened) after the honey-flow is past, is not, of course, exactly the thing for a straight man to do; but I presume most of his customers would be glad to get even that, if they can't get the money. In justice to him, I would say that many orders have been filled after a long delay. In a few cases he has sent more than the money's worth. The question naturally arises, Is he responsible, and can these small sums be collected of him? So far as we have been able to gather, I think he is not—at least he allows his accepted drafts to go by without scruple. These operations have not been on any thing like the scale of Mr. Burch; that is, no very large sums of money have been sent him, so far as I can discover. When we accepted his advertisement he was considered a good square man; and whether this has all been a scheme of his from the outset, or whether he has used money belonging to others injudiciously, may be hard to say. At any rate, if he values his reputation we offer him every possible chance to regain it. The plea made by a few, that one may be swamped by reason of having *too much* business, is, I believe, recognized as being a rather thin excuse for neither sending back the money nor filling orders. Not a word has been heard from him since the telegram given in our editorial last month, on this matter.

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A HOME JOURNAL
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FOR EVERY LOVER OF
FLOWERS, POT-PLANTS, BOTANY
FINE LAWNS, TREES, SHRUBS,
GOOD FRUIT AND VEGETABLES.

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It tells how. No long, dry articles. Meaty as an Apple; spicy as a Pink; handsome as a Rose. Distinct in style. So readable that even children crave it. The best. The cheapest. Sample copy 6 cents. A surprise to all. We make this liberal Trial Offer that EVERY AMERICAN FAMILY may at once know the paper. Stamps accepted. Address

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ON TRIAL 3 MONTHS 15 CTS.

SURE TO SEND
FOR MY NEW
PRICE LIST FOR 1886,
Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb
A. B. HOWE, Council Bluffs, Ia.

LOOK HERE! To any one wishing to purchase nice Italian bees I will furnish them, during the month of July, for 50 cts. per pound. Tested queens, $1.00 each; all queens reared from cells built under the swarming impulse. In all cases, cash must accompany order.
13-14 A. G. BRUSH, Susquehanna, Pa.

FLORIDA PALMETTO FANS,
By mail, postpaid, 75 cts. Send money by registered mail. W. H. STEACY, BOX 20, THONOTOSASSA, FLA. 13-14d

ITALIAN BEES IN IOWA.
60c to 85c per lb. Queens, 30c to $1.75, according to kind and time. Also bee-supplies and honey. Order from free circular. **"How to Raise Comb Honey,"** an illustrated pamphlet, just out, price 5 cents. Address OLIVER FOSTER,
13tfdb Mt. Vernon, Linn Co., Iowa.

CHEAP!
Full colonies in Simplicity hives, and honey enough to winter, for only $4.50. *Will ship last of July.*
DAN WHITE,
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FIRST IN THE FIELD!!
The Invertible Bee-Hive
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TOP, BOTTOM, AND
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CARNIOLAN ÷ QUEENS.
Fertilized in my apiary of 100 colonies Carniolan bees. Untested queens, safe arrival guaranteed, $1.00 each; six, $5.00.
DR. S. W. MORRISON,
13tfdb **Oxford, Chester Co., Pa.**

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COMB FOUNDATION MILLS.
Send for samples and reduced price list.
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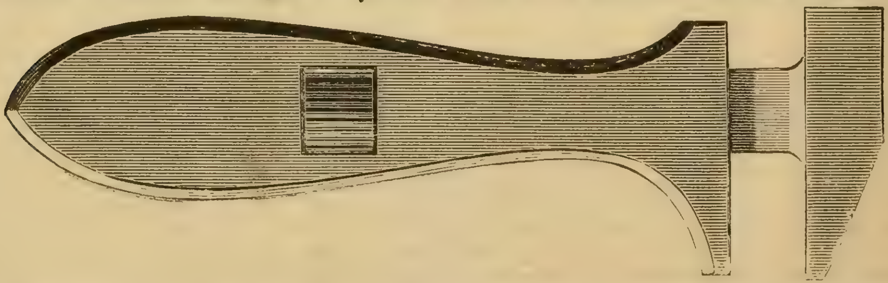
For Sale. COLONIES, NUCLEI, and QUEENS, AT LOWEST PRICES.
11-16db GEO. D. RAUDENBUSH, READING, PA.

DO YOU EAT CANDY?
Send $1.25, and I will express 5 lbs. of Todd's Honey Candies, same as made a sensation at last Pennsylvania State Fair. Remember, every pound sold helps the honey-trade. Special rates for quantities for fairs. Dadant Foundation always in stock at market prices. Bees, Queens, Hives, Smokers. Vol. I of Frank Cheshire's new book mailed free, $2.50.
914db ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.

KENTUCKY QUEENS. Italians, Holy-Land, and Albinos. Tested, $2.00; untested, $1.00 each. Bees, 75c per pound after 15th July. PELHAM & WILLIAMS,
13-16db Maysville, Ky.

OUR TEN-CENT ADJUSTABLE WRENCH



The above cut gives the exact size of this very convenient tool, for the very insignificant price of only 10 cents. If wanted by mail, 6 cts. extra for postage. One of these wrenches in your pocket will oftentimes save you the cost of one in a single day. Who has not had to stop a plow, cultivator, or, possibly, some more complicated piece of machinery, while he went to the tool-house or somewhere else for an adjustable wrench? A good many times two wrenches are needed—one to hold the square head of a bolt from turning while you turn the nut. In such a case these little fellows will do just as well as a larger one. It is true, they are not strong enough for heavy work; but if you break them, why, you are only 10 cents out, after all.
A. I. ROOT, Medina, Ohio.

HARRINGTON'S AD.

BEES CHEAP!

I have the finest lot of Queens and Bees I have ever raised in my 13 years' experience, and should like to have everybody see them. I will sell at following low prices:

SELECT TESTED (VERY FINE)	*$2.00*
TESTED - - - - - - -	*1.00*

My Queens are nearly all mated with drones from an imported Italian Queen. Half-blood Holy-Lands, Cyprians, and Albinos, at same price.

H. B. HARRINGTON,
May 26, 1886. Medina, O.

OHIO WESLEYAN UNIVERSITY

DELAWARE, OHIO. One of the great Colleges of this country, offers to both sexes, at surprisingly small expense, unsurpassed advantages for a full College Course or for Special Studies. **Collegiate, Preparatory, Normal, Commercial and Art Departments. First-class Conservatory of Music.** Elegant home for ladies with teachers. **Necessary expense for a term, only $50 or less.** Catalogue free. **C. H. PAYNE, LL. D.**, President.

PURE ITALIAN QUEENS.

100 READY EVERY 30 DAYS.

Untested at 75 cents; 10 for $7.00. Tested queens, $2.00 each. All bred from a selected imported mother. Cells raised in full colonies.
10tfdb D. G. EDMISTON, ADRIAN, LEN. CO., MICH.

SEE WHAT THIS IS.

Two-frame nuclei of the finest strain of Italian bees; combs full of brood, strong in bees, with an extra select tested queen, for $2.50. Three frames, $3.00, or two for $500. The frames are L. size. Satisfaction guaranteed. **J. A. BUCHANAN,**
12tfdb Holliday's Cove, Hancock Co., W. Va.

ITALIAN * QUEENS.

Very choice tested, $2.00 | Choice untested, $1.00
Circular free. WALT S. POUDER,
13tfdb Groesbeck, Hamilton Co., Ohio.

QUEENS.

I have them, bred from a best selected queen of Root's importation, 90 cts. each; 6 for $4.50. I can give all orders immediate attention, and ship by return mail. Send postal for dozen rates.
10tfdb **B. T. BLEASDALE,**
596 Woodland Ave., Cleveland, Ohio.

ITALIAN QUEENS. Untested, 75c.; six, $4.00. Tested, $1.50. Write for price list of bees, fdn., etc.
13-15db JNO. NEBEL & SON, High Hill, Mo.

F. HOLTKE'S 3-FRAME NUCLEI, WITH $1.00 QUEEN, FOR ONLY $2.00!

Three-frame nuclei, with $1.00 queen, from 15th of May on, $2.00. Combs built in Simplicity frames, and well stocked with bees and brood. 13tfdb
Fred'k Holtke, Carlstadt, Bergen Co., N. J.

ITALIAN BEES FOR SALE.

7 strong colonies in Kidder hives; frames 10¾x11¼ inches, at only $5.00 per colony. Address
13-14d W. J. HILLMAN, Green River, Wind. Co., Vt.

By Return Mail.

Select tested queens, each, - - - - -	$1 50
Warranted queens, " - - - - - -	75
" " per doz., - - - -	8 00
Strong 3-frame nuclei, L. frames, each, - -	2 50

Address **JAMES WOOD,**
12-15db **No. Prescott, Mass.**

ITALIAN QUEENS

TESTED, $2.00; UNTESTED, $1.00.

MISS A. M. TAYLOR,
12tfdb MULBERRY GROVE, BOND CO., ILL.

1880. 1886.

Headquarters in the North.

Steam factory, fully equipped, running exclusively on *BEE-KEEPERS' SUPPLIES.* White-poplar and basswood one-piece and dovetailed sections. Vandervort thin foundation. Send for free samples and illustrated price list.
10-15db **A. D. D. WOOD,**
Rives Junction, Jackson Co., Mich.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

---

NOW READY. ITALIAN QUEENS.

1 queen. $1.00; 2, $1.80; 3, $2.50; 5, $3.75. Bees by the pound, nucleus, and colony. 13-15db
L. T. HOPKINS, Conway, Franklin Co., Mass.

A. J. KING'S New Circular of **CARNIOLAN, SYRIAN,** and **ITALIAN QUEENS,** etc., will be *SENT FREE* on application. Address
13tfdb A. J. KING, 51 Barclay St., New York.

ITALIAN AND CARNIOLAN QUEENS.

Bred in separate apiaries, away from other bees. Warranted Italian or untested Carniolan queens, in May, $1.25; 6, $6.75; June, $1.10; 6, $5.90; July, $1; 6, $5. State which you prefer, Italians bred from my *Bellinzona strain*, or *Golden Italians*. I am prepared to please all.

BEES AT REDUCED RATES.

For full particulars, and prices of tested queens, bees, etc., send for circular and price list. Satisfaction guaranteed. **CHAS. D. DUVALL,**
9tfdb **Spencerville, Mont. Co., Md.**

GOOD NEWS FOR DIXIE!

SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23-22db
A. F. STAUFFER & CO., Sterling, Ills.

QUEENS, 1886. UNTESTED,

From select imported mother. After May 15, $1.00. Wax worked into fdn. for a share, or by the pound. Satisfaction guaranteed. **THOS. & BENJ. YOUNG,**
10-15db LA SALLE, LA SALLE CO., ILL.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.— To exchange 20,000 strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale, 75 cts. per 100; $4.00 per 1000, for bees, foundation, or improved poultry.
10tfdb W. J. HESSER, Plattsmouth, Neb.

WANTED.—To sell, after June 1st, 50 3-frame L. size nucleus colonies of hybrid bees, with queens, for $3.50 each, delivered at Plattsmouth, Neb., or I will exchange for young stock, cattle or horses, or apiarian supplies.
12tfdb J. M. YOUNG, Rock Bluff, Cass Co., Neb.

WANTED.— To sell or exchange a farm, 160 acres; good buildings, good soil, good title. All under fence. For sale at a fair price. Address 12tfdb
W. B. BROWN, Spirit Lake, Dickinson Co., Ia.

WANTED.—To exchange Italian bees in three-frame nucleus with queen, at $3.50 each, for fdn., brood size, 8x16½. Also young queens at $1.00 each. 13-14d M. ISBELL, Norwich, N. Y.

FOR SALE or exchange, White English Rabbits, choice stock very low, now; also P. ducks and poultry cuts for sale cheap.
13-14d O. L. COVER, Covington, Ohio.

WANTED.—To exchange bees in Root's Simp. or chaff hives, or a saw-table with $7.00 mandrel, suitable for power, for a Barnes foot-power circular saw, or will sell cheap for cash.
13-16db M. LUDTMAN, Hannibal, Monroe Co., Ohio.

FOR SALE.—Italian Bees and brood. Queens bred from imported mothers. Or I will exchange for supplies at a bargain.
13tfdb C. F. UHL, Millersburg, Ohio.

WANTED. — A partner to take half-interest in an Apiary, with a little capital. Address
LOUIS WERNER, Edwardsville, Ill.

WANTED.—To exchange nursery stock for Italian queens and fdn. I have 20 varieties of apples, 10 of plums, and a full line of peaches. Also 3 new apples that received the premium at the Illinois State Fair last fall—the Minkler, Redden's Seedling, and Sparks.
14d GEORGE GOULD, Villa Ridge, Ill.

WANTED.—To exchange queens and bees by the pound for fdn. for wired L. frames.
MISS A. M. TAYLOR, Mulberry Grove,
14d Bond Co., Ill.

FOR SALE.—Pasteboard boxes for inclosing section honey. The best out! Improved over last year. Thousands sold! Price, 1-lb. size, $6.00; 2-lb., $8.00 per 1000. One sample, 5c. 14-oz. square glass jars, $5.00 per gross; 1½ gross in case. Fine assortment of honey labels. Catalogue free.
14-17db A. O. CRAWFORD, S. Weymouth, Mass.

WANTED.—To exchange pure Wyandott cockerels for tested Italian queens or offers. 14tfdb
M. W. SHEPHERD, Rochester, Lorain Co., Ohio.

QUEENS at reduced prices. | *Casey, Ill., July 6, 1886.* *Mr. Wilson:*—Send me 6 queens. I have tried several breeders, and your queens are as good as can be found in this country. D. R. ROSEBROUGH.
Warranted queens, 75c each; $8.00 per doz.; 2 doz. for $15.00. Will exchange for honey.
J. T. WILSON, Nicholasville, Ky.

WANTED.—To exchange Italian queens and bees for improved poultry, Simp. hives in flat, strawberry-plants, tools, printing-press, or offers. Price list free. 14d J. P. MOORE, Morgan, Ky.

WANTED.—To exchange full colonies Italian bees for bicycle, 52 or 54 inch, or first-class breech-loading shot-gun, 10 or 12 bore. D. S. BASSETT,
Farnumsville, Worcester Co., Mass.

WANTED.—To exchange bees or queens for foot-power saw. Will sell fine tested queens for $1 each; untested, 70 cts. each, either Syrian or Italians. ISRAEL GOOD, Sparta, Tenn.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have some Italian hybrid queens that I will mail at 30c each, and guarantee safe arrival.
N. A. KNAPP, Rochester, Lorain Co., Ohio.

24 hybrid and mismated queens for 40 cts. each; 3 for $1 00; also a few untested and tested queens, rather small, but good layers, at same price. Safe arrival guaranteed. S. C. PERRY,
Portland, Ionia Co., Mich.

Good serviceable hybrid queens, one year old, for 25c each. Ready now. J. H. JOHNSON,
Middaghs, Northampton Co., Pa.

I should be glad to sell what black queens I have for 25c., and hybrids for 50; ready now.
ADOLPHUS NEWTON, Plymouth, N. Y.

Wishing to Italianize my whole apiary I have a few hybrid queens for sale at 25 cts. each. They are all prolific, and the workers gentle and good.
WM. H. HUSE, Manchester, N. H.

HYBRIDS AT $3.00 PER COLONY.

Must be sold prior to Aug. 25th, 25 colonies of bees, in frame hives; plenty of honey to winter, only $3.00 each. I am going to Pacific Coast. 14-15d
Address H. H. WINSLOW, Liberty, Clay Co., Mo.

ITALIAN QUEENS, by Return Mail, Tested, $1.00. Untested, 75 cts. Bees, 50 cts. per lb.
14-15d GEORGE STUCKMAN, Nappanee, Ind.

Stop! Read This!

12 warranted Italian queens, by return mail, for $8.00; 6 for $4.25. Single queens, 75 cts., after Aug. 1. Carniolan queens at double the above price. See our advertisement on another page.
J. B. MASON & SONS,
14d Mechanic Falls, Me.

CELERY-PLANTS.

Crawford's Half-Dwarf, Boston Market, etc., 150 choice plants, carefully packed in a box and mailed prepaid for $1.00; 1000 for $4.00. Safe arrival guaranteed, even to California and Oregon. By express (not prepaid) just half above rates.
A. T. COOK, Clinton Hollow, Dutchess Co., N. Y.

BEE-VEILS.

WHEN the honey stops coming in, perhaps some of you will need a good bee-veil. We can furnish you a well-made veil of grenadine, with a face of Brussels netting, for only 50 cts. postpaid; 10 for $4.00. Our former price on a veil with a facing of Brussels netting has been 75 cts.
A. I. ROOT, Medina, Ohio.

DR. J. W. CRENSHAW, Versailles, Woodford Co., Ky., has untested Italian queens for sale at 75 cents each. 14-15d

$2.50 CHEAP $2.50

I will sell three-frame (Simp. size) nucleus colonies, all straight worker-comb, well-filled with brood and honey, 1 pound of Italian bees, and nice tested Italian queen, for only $2.50. Now, friends, I guarantee these colonies to be first-class in every respect. Fifty colonies ready now. A fine lot of untested queens at 75 cts.; $4.00 per ½ doz., and tested at $1.00; $5.50 per ½ doz. Safe arrival and satisfaction guaranteed. **F. W. MOATS,**
14d The Bend, Defiance Co., Ohio.

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CONVENTION NOTICES.

The next meeting of the Stark Co. Bee-Keepers' Society will be held in Grange Hall, Canton, O., Aug 31, 1886.

MARK THOMSON, Sec.

The Committee is hard at work perfecting plans for the next Annual Convention of the N. A. B. K. A., to be held at Indianapolis, Oct. 13, 14, and 15, 1886, and will soon be ready for the general announcement of programme, etc.

DOUGHERTY & WILEY, Indianapolis, Ind.

KIND WORDS FROM OUR CUSTOMERS.

HOW WELL OUR EXTRACTOR PLEASES.

We received the extractor last Saturday, the 19th. It works splendidly. We have already extracted enough honey to pay for it, if we can get a fair price for it. Mr. Root, you can not know how thankful we are to you for sending it without having received the money; for if we had been obliged to wait until we had the money to send, the honey season would have been almost past; and all such favors in the past and future have been and will continue to be highly appreciated. MILLER BROS.

Bluffton, Mo., June 26, 1886.

CARNIOLAN ✻ QUEENS.

Carniolans are the Gentlest Bees Known,

AND EQUAL TO ANY OTHER RACE FOR WORK.

THE QUEENS ARE THE MOST PROLIFIC.

I offer daughters, of Imported Benton Carniolan queen, raised in my apiary of 40 colonies of pure Carniolan bees, during the remainder of this season, $1.00 each; six, $5.00.

DR. S. W. MORRISON,
13tfdb **Oxford, Chester Co., Pa.**

ITALIAN QUEENS FOR 1886

Tested, 90 cts.; untested, 50 cts.; warranted, 65 cents.

C. C. KIRKMAN,
15d Coxville, Pitt Co., N. C.

RED-CLOVER ITALIANS.

During the season just passed, Moore's Italians have roared away on red clover, in countless thousands. Reduced prices: Warranted queens, each, 80 cts.; per ½ doz., $4.50. Tested queens, $1.50. Safe arrival and satisfaction guaranteed. Circular free. 15tfdb J. P. MOORE, MORGAN, PENDLETON CO., KY.

Jerseyvile, Ill., July 23, 1886.

Mr. J. T. Wilson, Dear Sir:—The 55 warranted queens I received of you last year were all purely mated except one. The most of the queens were choice, and as good as higher-priced ones, for general purposes. E. ARMSTRONG.

One queen, 75 cts.; 6 for $4.00. Warranted purely mated. Will work as well on red clover as anybody's bees. Will exchange for honey, alsike clover seed, or Poland-China hogs.

15d J. T. WILSON, Nicholasville, Ky.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—To exchange 20,000 strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale, 75 cts. per 100; $4.00 per 1000, for bees, foundation, or improved poultry.
10tfdb W. J. HESSER, Plattsmouth, Neb.

WANTED.—To sell, after June 1st, 50 3-frame L. size nucleus colonies of hybrid bees, with queens, for $3.50 each, delivered at Plattsmouth, Neb., or I will exchange for young stock, cattle or horses, or apiarian supplies.
12tfdb J. M. YOUNG, Rock Bluff, Cass Co., Neb.

WANTED.—A partner to take half-interest in an Apiary, with a little capital. Address
LOUIS WERNER, Edwardsville, Ill.

FOR SALE.—Pasteboard boxes for inclosing section honey. The best out! Improved over last year. Thousands sold! Price, 1-lb. size, $6.00; 2-lb., $8.00 per 1000. One sample, 5c. 14-oz. square glass jars, $5.00 per gross; 1½ gross in case. Fine assortment of honey labels. Catalogue free.
14-17db A. O. CRAWFORD, S. Weymouth, Mass.

WANTED.—To exchange bees or queens for foot-power saw. Will sell fine tested queens for $1 each; untested, 70 cts. each, either Syrian or Italians. ISRAEL GOOD, Sparta, Tenn.

WANTED.—To exchange Italian queens for alsike clover seed. J. T. VAN PETTEN, Linn, Kan.

FOR SALE.—A two-story brick house, with five lots, good barn, ice-house with cooling-room, bee-house, honey-house, wood-house, etc. Grapes, berries, apples, and cherries on the place; in small town, location suitable for bee or chicken business. Will sell cheap for cash, or exchange.
15-18db ANABEL RONALD, Grand View, Iowa.

WANTED.—To exchange a warranted first-grade fruit and vegetable evaporator and baker, for honey—a bargain for an orchard owner.
15d JNO. C. CAPEHART, St. Albans, W. Va.

WANTED.—To exchange best drone-traps made for one or more extractors, Simplicity frame. Send for circular.
15tfdb J. A. BATCHELDER, Keene, N. H.

WANTED.—To exchange for comb or extracted honey, cash or offers, 15,000 pot-grown strawberry plants of the best varieties; also game cocks. Can give best reference. GEO. M. WERTZ,
15tfdb Johnstown, Cambria Co., Pa.

WANTED.—To exchange hybrid bees, in 10-frame Simplicity one-story hive, with 10 frames full of brood and honey, for incubator, printing-press, Pekin ducks, or B. L. pullets, or any thing useful. Write at once, saying what you have for exchange.
15-16 Address JNO. W. MARTIN, Greenwood, Va.

WANTED.—To sell or lease a farm, 160 acres in cultivation, good buildings, good water, an apiary of 75 colonies in Simp. hives, carp-ponds, etc.
15-16d A. W. MATTHEWS, Galla Rock, Pope Co., Ark.

FOR SALE, or will exchange for 20 two-story Simplicity hives, complete, in flat, golden Italian queens. Price, mismated, 50 cts.; untested, 75 cts. Tested, $1.50; best select tested, one year old, $2.50. Safe arrival and satisfaction guaranteed. Reference, Bank of Princeton, and L. Goodwyn, P. M., Frenchville, W. Va. L. L. HEARN,
Frenchville, W. Va.

WANTED.—To exchange full colonies Italian bees for first-class bicycle, 50 inch, or first-class double-barrel breech-loading shot-gun, 10 or 12 bore.
15 D. S. BASSETT, Farnumsville, Wor. Co., Mass.

WANTED.—To exchange strawberry-plants, Crescent, Big Bob, and Clark's Seedling, for alsike clover seed or money. MAHALA B. CHADDOCK,
15d Vermont, Fulton Co., Illinois.

HARRINGTON'S AD.

BEES CHEAP!

I have the finest lot of Queens and Bees I have ever raised in my 13 years' experience, and should like to have everybody see them. I will sell at following low prices:

SELECT TESTED (VERY FINE) $2.00
TESTED - - - - - - - 1.00

My Queens are nearly all mated with drones from an imported Italian Queen. Half-blood Holy-Lands, Cyprians, and Albinos, at same price.

H. B. HARRINGTON,
May 26, 1886. Medina, O.

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

---

LEWIS V-GROOVE
ONE-PIECE SECTIONS

Down, Down, Goes the Price.

First Quality, White Basswood, One-Pound Sections, In lots of 500 to 3000, $4.00 per 1000.

SPECIAL FREIGHT RATES.

If 3000 or more are wanted, write for special prices, delivered to you, freight paid by us.

G. B. LEWIS & CO., 9tfdb
April 15, 1886. **Watertown, Wisconsin.**

---

600 LBS. OF BEES ON HAND YET.

Bees, $1.00; queens, black or hybrid, when I have them, 35 cents. Queens raised from imported mothers, after July 1, 65 cts. by mail; 50 cts., with 1 lb. of bees by express, charges paid by me, as in May.

THOMAS GEDYE,
12tfdb **La Salle, La Salle Co., Ill.**

NORTHERN-GROWN QUEENS.

If you think them hardier, send me an order for queens, warranted pure Italians, bright colored. Any one buying five queens, I will send him one pair of standard W. L. chicks free. Price of queens, $1.25; price of chicks, $2.00 a pair.

C. A. DEARBORN,
14-16db Hudson, St. Croix Co., Wis.

ONE-DOLLAR QUEENS.

I will give you a printed guarantee of purity of every untested queen sent at $1 each before Sept. 15.
14 16db J. B. HAINS, Bedford, Cuyahoga Co., O.

CRYSTAL FRUIT-JARS CHEAP.

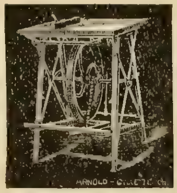
SELF-SEALING. BEST QUALITY.

1-pint jars, per gross,	$10 00
1-quart " " "	12 00
½-gallon " " "	15 00

HONEY-JARS AND SUPPLIES.

TYGARD SONS, - 2119 S. JANE ST.,
14-15d **PITTSBURG, PA.**

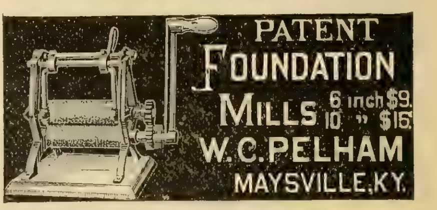
Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7 inch cap, 100 honey racks, 500 broad frames, 2,000 honey-boxes and a great deal of other work. This winter we have double the amount of bee hives, etc., to make and we expect to do it all with this Saw. I will do all you say it will." Catalogue and Price List Free. Address W. F. & JOHN BARNES, 68 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

17-15d



QUEENS.

I have them, bred from a best selected queen of Root's importation, 90 cts. each; 6 for $4.50. I can give all orders immediate attention, and ship by return mail. Send postal for dozen rates.
10tfdb **B. T. BLEASDALE,**
596 Woodland Ave., Cleveland, Ohio.

CHEAP!

Full colonies in Simplicity hives, and honey enough to winter, for only $4.50. *Will ship last of July.* **DAN WHITE,**
11tfdb NEW LONDON, HURON CO., OHIO.

MY 18TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
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GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A. Whiting

Vol. XIV. **AUGUST 1, 1886.** **No. 15.**

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YOUR "OWN APIARY."

SOME SUGGESTIONS FROM FRIEND HEDDON.

AS Ernest is now the practical apiarist at the "Home of the Honey-bees," perhaps I can shed most light by discussing with him the more vital and practical points connected with our pursuits. Now a word about

REVERSING.

In enumerating some of its advantages, on page 593, Ernest has omitted one which we prize most highly. It is this: When a frame is completely filled with comb, leaving no lurking-places, we can quickly clear it of all bees for extracting or other purposes, and more readily find the queen when traversing such combs. He says, truly, that the metal corners could be attached to the Heddon reversible frame; but, how differently we look at these things! I could not be induced to use metal corners under any circumstances. I find them liable to bend, and are cutting to the fingers when handling and shaking the combs. The common wooden projection is very readily movable when placed upon metal rabbets, and we use such in all our extracting supers, but have entirely discarded these rabbets in the brood-chamber; for as we handle hives more and frames less, we do not want the frames to slide about so easily. We so used 25 hives for three years.

Is it not true, that our older producers are likewise discarding metal corners for frames? Metal standards are not needed in our frames, because the top-bar is double; and there is nothing to even tend to sag the outer bar, which determines the accuracy of the bee-space. If the inner bar sags, it straightens again after inversion.

The large open space which our style of frame leaves between the hive and the lower half of the frame-end, aids much in removing and readjusting it. The outer top-bar must be firmly nailed to the outer end-bars to prevent pulling off when shaking heavy combs, as it is not fastened to the comb. I suggest two proper-size barbed wire nails at each end; and we use and prefer whitewood or poplar for these end-pieces.

ROBBING.

Let us try having that pane of glass a looking-glass, and see what effect that will have. Perhaps not as good as plain glass, but we might try it.

EMPTY BROOD-NESTS.

Friend Hutchinson, it appears, is carrying this problem all alone. Almost every day I receive letters declaring against his position, citing experiments as well as theory. The basic principle of friend H.'s departure, I advocated some years ago as between empty frames or frames of foundation and full complete combs, when running for comb honey. I did not at the time, and can not say that I do now, conceive that this principle reaches so far, that empty frames are even more profitable than frames filled with foundation, at the same price, when running for comb honey. But I have not experimented directly upon this point, and friend H. has, and he is an apiarist in whose integrity and practical knowledge, as well as keen insight, I have the greatest faith; in fact, my acquaintance with him compels me to say that I hold him second to no man in America; and this, coupled with his vigorous pen, accounts for his shooting up above the apicultural horizon like a meteor. While such great "doctors" disagree, and while I am confident that both sides are right, in part, next season I am going to test this important problem for myself and my surroundings, in hopes to become an ally or an experienced opposer of friend Hutchinson's. It is a great problem, directly affecting the economy of our pursuit.

OUR 1886 MARKET.

Hold on, friend Root! "schtop a leedle;" somewhere in last issue you spoke of the low price we were going to get for our 1886 crop of honey. Notwithstanding my wide correspondence with bee-keepers, and careful watching of this point in the journals, I am unable to see any cause for said "low prices," unless it be statements like your own referred to. In very many localities in the U. S., this year's crop is almost or quite a total failure. In many others the white-clover crop is good; but so far as I can learn, the basswood, the greatest yielder of them all, is not even a fair crop, except in rare instances; and, taking the whole country together, may be pronounced almost a failure. Now, why should we look for prices lower than those of last year? Let no man so consider it until evidence compels him to. Let me tell you why. Honey is essentially a luxury; a large portion of honey-consumers would buy nearly or quite as much at a high price as they could be induced to consume at any price. Last year's prices were as low as bee-keepers can thrive at, and I firmly believe that if all who have honey to sell will take courage and advantage of the pitiful fact that many of our brothers have none at all, there will be no trouble to find a demand for the 1886 crop at prices equal or better than those realized last year.

FORMING NUCLEI.

Ernest's last report of his experience with the Doolittle method is just what what we should expect here. Had he met the same success reported by Mr. Doolittle, we can not then see any reason for adopting that method. We have this season formed some 300 nuclei, and in our next will tell you how we succeed, to our entire satisfaction with (we think) less than one-fourth the labor and trouble necessary to the carrying-out of the Doolittle plan.

Dowagiac, Mich., July, 1886. JAMES HEDDON.

I am very glad if honey will not have to go at a low price, friend H.; but I judged so because so many are wanting to sell us honey while we are so well supplied that we can not make even a decent offer for it. Now, the best remedy I can think of in the line of your suggestions is to keep our Honey Column full. Will our brethren who have honey to sell tell how much, what quality, and what price they want, so that we may put it in the Honey Column? I think those who advertise in that way usually make sales sooner or later. We presume you all know that such notices are printed free of charge. —In regard to metal corners, I think that those who raise queens as we do will generally prefer them. With the constant manipulation in our apiary, we could not think of having combs that must be pried loose before they can be handled; and as our combs seldom get very heavy with honey, they give little or no trouble in the way of cutting fingers.

I tried the looking-glass, but not with so good results. The plain sheet of glass, by reason of its transparency, does not alter the appearance of the entrance; and the robbers, being deceived, will worry and weaken themselves in much the same way that they do in trying to get through our windows. On further trials, however, although the glass in many cases will answer a very excellent purpose, I think I should prefer to contract the entrance as is ordinarily practiced to prevent robbing. I have found that the glass will worry the occupants of the hive as well as the robbers, and also, as it is a little inconvenient to carry the glass about, the boys do not use it. It did not occur to me that the bees could be shaken off more easily, and the queen be much easier found, when the frames have been reversed. I see no reason why it should not be so.

MELILOT, OR SWEET CLOVER, AS A HONEY-PRODUCER.

FRIEND MUTH GIVES US SOME DEFINITE FACTS IN REGARD TO THE QUALITY OF THE HONEY.

FRIEND ROOT:—For the first time since I kept bees, our honey harvest has kept up, apparently, through the month of July. We never had so abundant a supply of melilot, or sweet-scented clover, as we have this year. Every hilltop and vacant lot in and about our city seems to be covered with it, and it is swarming with bees. They do their work quietly and steadily. Passing along a road a few days ago, which was lined with melilot, I stopped my wagon and went in. It was alive with bees, steadily at work. I was surprised, as I did not notice any bees while driving along. So far, melilot has furnished only enough honey to keep bees breeding until late in the fall, while now we get a surplus, which may last until frost comes.

The month of June, in this part of the country, is or has been our honey month, as with it white clover begins and ends, which used to be our whole resource. Cold nights during the first half of last June prevented the secretion of nectar; and wet weather during the latter half damaged our crop. I don't think that 25 lbs. of white-clover honey per colony is produced in the States of Ohio, Kentucky, or Indiana.

To-day's mail brings you a sample of melilot honey, which is produced on one of our hilltops on the west side of our city—Price's Hill. It is a fair sample of my own honey, and of that of a friend who lives at Clifton Heights, which is a hilltop on the north of our city. These three samples being alike, I have reason to believe that the sample mailed you is true melilot honey. The honey is very sweet, flavor fair, though not as good as that of white clover. It has a good body, but a color as if it were mixed with soot. Such honey will never answer to be put in the market for table use. The color of the honey is much stronger shown in a larger bottle than the one mailed you. This small bottle, however, will answer the purpose, if you hold a small bottle of white-clover honey alongside of it. If I am correct as to the source of this honey, melilot will be a great disappointment to us. I hope friends from other parts will report on the subject.

Cincinnati, O., July 17, 1886. CHAS. F. MUTH.

Many thanks, my good friend, for your kind letter, and the sample of honey. I should not be in haste to feel disappointed, for it occurs to me that the sooty appearance of the honey may be caused by the smoke of your great city, even if the clover does grow on the hilltops. You will remember that friend Kendel said, some time ago, that he would have to give up raising comb honey, by reason of the soot; and later I think he has said he will have to abandon liquid honey for the same reason. The flavor of the honey, I should call beautiful—in fact, I believe I should prefer it to honey made from common white clover—that is, at first taste. Now, can't some of the friends who have been raising melilot by the acre tell us if it always has a dark, sooty color? If melilot can be made available for some other purpose than the honey it produces, it seems to me it would be quite promising as a honey-plant.

A KIND REPORT FROM ONE OF OUR FRIENDS OF THE MINISTRY.

GETTING HOLES IN THE COMBS FOR WINTER, ETC.

MY DEAR BROTHER A. I. ROOT:—I thought I might venture a line in GLEANINGS, and thus in a small way reciprocate the kindness of others who from time to time have given to such as me encouragement and instruction. However, I shall not assume the *role* of instructor.

I began last season with one colony of Italians; increased to 3, but took no honey. They wintered nicely, in the main. The ones in the single-wall Simplicity—upper story filled with chaff, and protected on the west and north by a wall of empty hives—came through stronger, however, than the ones in the chaff hive. At the suggestion of Bro. James Walcher—an apiarist of not a little celebrity, located near Millersville, this State—in the Simplicity single-wall I cut holes through the combs near the top-bar, about one inch in diameter, that the bees might have easy access to all the combs, without passing around at the bottom, and thus expose themselves to the cold. I do not see but it answers the same purpose of Hill's device; and if so, dispenses with this much that would demand care and space. I did not accommodate the bees in the chaff hive with this "short cut," though in other respects they were the same; so I am persuaded that the holes were a decided advantage, and especially for a winter such as last.

This spring I procured 3 colonies more—Italians. Two of them were quite weak, so to start with I had 3 strong and 3 weak colonies. I have increased to 13 colonies, and have taken, with the aid of the Novice extractor, 953 lbs., and 96 lbs. in 1-lb. sections, making in all 1049 lbs.

We had an ideal spring, and the summer thus far has been uncommonly fine. We have had flowers in profusion, and the flow of nectar has been most copious. The white clover and linden have both yielded profusely, and now the mustard and smartweed are making yellow and pink every nook and corner, and all these flowerets seem to be doing their best, so the busy bees are still invited to sip, and will continue to provide, for weeks to come, I doubt not, these delicious juices.

While it is my chief concern to herald the glad tidings of God's full and precious Christ to poor lost ones, I can fill up the spare hours most happily in looking after the bees, and I am made to sing from a full heart at each new unfolding, "How good is the God we adore!"

I have found the A B C book and Cook's Manual valuable aids; they have helped me through many a perplexity. I may add, I began with gloves and veil, but I have dispensed with both.

The 10-cent honey-knife is just the thing. It has done all our uncapping. FRANK C. BLOUNT,

Lawndale, Ill., July 14, 1886.

Thanks, friend B., for your kind letter. Some years ago it was quite common to cut these winter-passages; but the bees often seal them up during a good honey-flow, and some of the friends think it makes the combs look unsightly. Another objection is, sometimes the cluster is over at one side of these holes, and they don't answer the purpose. To obviate this latter, two holes have been suggested, 3 or 4 inches apart; but as the Hill device, or some equivalent, permits the bees to pass out and around, and does not mutilate the combs, we have rather preferred it.

IMPROVING OUR SEED BY CAREFUL SELECTION OF STOCK.

SOME KIND WORDS FROM THE OHIO AGRICULTURAL EXPERIMENT STATION.

FRIEND ROOT:—I have been quite pleased in looking over your journal of the 15th, to see what you say about selecting seed. I have been working in this line here at the station for some time. I have not done much toward the improvement of vegetables, except tomatoes; but I have tried to show the importance of selection, as you may have seen in our report. The character of stock from each seedsman is there commented upon. This has not been undertaken for the purpose of exposing the poor stock of any one in particular, but rather for the purpose of calling attention to the importance of *selection* in growing seed. We shall continue the work, and enlarge upon it as fast as possible.

My purpose in writing this is to call your attention to the excellence of Mr. Brill's cabbage-seed, especially that of his Early Wakefield. I regard it as the best to be found in the market. Under favorable conditions I am sure that 95% will form marketable heads, and they are remarkably uniform. If you refer to me, perhaps Mr. Brill will send you a better grade of stock than he otherwise would, as he has, as all growers have, what they call stock seed, also ordinary trade seed. He may send you some stock seed. His Early Summer is also excellent, as are all his cabbage and cauliflower seed. Have you tried the Deacon lettuce? If not, Joseph Harris has it. You are doing a good thing for the public in showing what may be done in gardening. W. J. GREEN.

Columbus, Ohio, July 19, 1886.

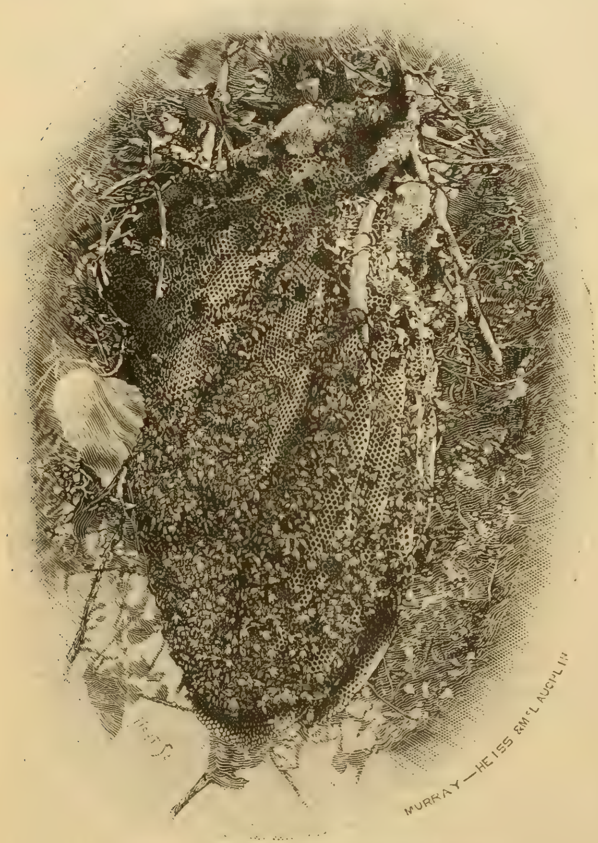
Experiment Grounds at the Ohio State University.

Friend G., I presume your kind letter was not intended for publication; but as it will be read with interest, I am sure, by many of our readers, I take the liberty of giving it here. I have never tried the Deacon lettuce, but I will order some at once, and perhaps many of our readers will be glad to avail themselves also of the opportunity. I have had you and your work in mind, friend Green, all along in my work at seeds and plants.

HOW BEES WORK IN THE OPEN AIR IN CALIFORNIA.

A PICTURE SENT US BY THE KINDNESS OF FRIEND HILLIER.

WE have frequently had reports of bees building combs in trees or among bushes, and living for several months, even where rainstorms are frequent. We have also been told, that in California and other countries where no rain falls for a long period, and comparatively little in the rainy season, that they would live the year round in no hives except the protection afforded by such combs as they could build, and by their own clustering, shedding the rain with their wings turned like shingles. Below we give a picture of such a hive.



A COLONY OF BEES LIVING AND PROSPERING WITHOUT A HIVE.

The following is all the description we have with the picture:

I mail you a stereoscopic view of a swarm of bees at work in the open air, which is no very uncommon sight here. They are hybrids. H. H. HILLIER.
Pasadena, Los Angeles Co., Cal., June 9, 1886.

We think our engravers have done a pretty fine piece of work in copying so faithfully the work of the camera.

A CALIFORNIA BEE-STORY.

TRUANT SWARMS GOING INTO HOUSES IN CALIFORNIA.

I MAY have told you about my brother who lives on a ranch near San Diego, Cal. Well, this brother has never taken much to bees, but lately he has got a notion of trying them. He gives us some of his experience in the following; also the bee-story alluded to in our head:

Bro. Amc:—Last January I bought 4 stands of bees for $10. As they were in common box hives I transferred them in February, the weather being so warm the combs all ran together, and, I think, destroyed all the queens but one; and after swarming the hive lost its queen, I think, as it is not doing any thing. I put a hive up by the barn, put ten frames in with fdn., and in a few days it was full of bees. I moved it down to the yard, and now they have the frames all capped, and part of the sections filled and capped. I fitted up another hive in the yard as above, and got them full of bees the same as those at the barn. The old original swarm is not doing any thing. Had I better have a good queen?

I imagine the bees here are mostly hybrids, although mine show three yellow bands. During May and June there were swarms passing over almost every day, and some of my neighbors have a good deal of trouble in keeping bees out of their houses. They have asked me what to do to get rid of them.

One Capt. Keen, from New Orleans, left his house here vacant one season; and when he came back he said he noticed his house was settling, and he thought it strange, as he had a good brick underpinning. Finally he went up into the garret, and found it full of bees and honey, and he says he has sent off for teams, there not being enough in this neighborhood, and has taken off 50 tons of honey to San Diego, and has got only a very small part of the whole yet. He says he has glutted the market, so now honey is down to 3 cts. a pound.

The above corresponds with one of his stories. He says he tells them in New Orleans about California beets. Where the beets are taken out of the ground, he says, we have to build a fence around the hole to keep the stock from falling in.

Joking aside, the country around is full of bees. I know of several places where they are in caves on the hills. If I had been at home, so I could have attended to them, I have no doubt I could have had ten stands. Mine are very cross, but I rather like them. I think, as you say, bees are very good-natured.

There is a near neighbor of mine, Mr. Little, who keeps 250 stands in common boxes, with a stick across and box on top; and when the top box is full he empties the contents in a solar extractor, and sells wax and honey. I am told he got $800 for his wax and honey last year. He says he does not know any thing about bees.

I stayed with Capt. Knowles, on the San Diego River, last winter. He says there is more clean cash in bees here than any thing else, if a man understands it. He does not fuss with them as much as you write about. If a swarm gets weak he lets them go. He says his time is worth more than the bees. He uses part Simplicity hives and part Harbison's; but he likes the Simplicity the best of all, and would use all Simplicity but it is too much work to transfer them. He has three apiaries, and I think about 1000 swarms. I am situated so I think I can keep about 200, with plenty of room for forage.

I am going into the "New Agriculture" some. I am never so happy as when I have domestic pets and plants and vegetables growing. I can almost compare my "mountain retreat" to Robinson Crusoe's island. M. S. ROOT.

San Diego, Cal., July 11, 1886.

BOOK-REVIEW DEPARTMENT.

COOK'S MANUAL OF THE APIARY.

I SHALL not attempt to give a review of the whole work, but will confine myself to the new matter which has been added, or, rather, as I judge, substituted, in place of something else. If I am correct, there are about 25 pages rewritten in the new edition, the major part of which pertains to the

HEDDON-LANGSTROTH HIVE,

how made, and how to use. This is the hive that the professor has tried, and *knows* to be practical. After enumerating its good features, one is made to feel almost sorry that Heddon did not let well enough alone, and stay content with his old hive; but as Prof. Cook follows the safe rule of never recommending what he has not tried, though recognizing in theory the good points of the new hive, it is easy to see why he speaks in praise of the old hive. Of it he says:

> Thus I have described the Heddon-Langstroth hive minutely, as with W. Z. Hutchinson, W. L. Taylor, and many others of our most able and intelligent apiarists, I find it upon trial as excellent as it is simple. Surely, when we can harness excellence and simplicity together, we have a most desirable team. The simple union of parts by mere plain contact of the edges, or the cover simply lying on the hive, while it is just as acceptable to the bees, makes the hive far more simple of construction and easy of manipulation. The honey-board and bee-spaces keep all so neat, that, as one bee-keeper well says, their extra expense is very soon saved in the saving of time which their use insures. Any who may think of trying this hive had better do as I did, try two or three at first, and see if in their judgment the "game is worth the candle."

REVERSIBLE FRAMES.

Prof. Cook's experience with the principle of reversing frames in general, accords quite closely with ours as recorded in the department of Our Own Apiary of the two last issues, and I feel sure he is right when he says:

> For the past two years I have used the reversible frame which I find so valuable that I shall use it largely in future. With this frame there is no danger of the top-bar sagging, which is sure to enlarge the bee space above and create mischief, and by inverting we secure the firm attachment of the comb to the frame along all its edges, and can force our bees into the sections at the very dawn of the honey harvest. * * * * * These frames [Heddon's] reverse very easily, and I do not know a single person who has thoroughly tried them, who does not value them highly. Here again let me suggest that in making changes, a few be tried first, and not all till we know we wish them.

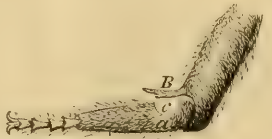
Notice in this and elsewhere, that he recommends trying only a few. While I *now think* that the advantages of the reversible frame are such as to ensure its ultimate adoption, nevertheless I regard the caution of trying a few first as a wise one. Many of us like the principle; but some of us, by reason of our difference in make-up, might not so regard it. Friend Pond, I believe, belongs to the latter class.

THE NEW HEDDON REVERSIBLE HIVE.

About three pages of new matter is devoted to this hive, and I will insert below what Prof. Cook says of it, omitting the description, which has already appeared in GLEANINGS. He says:

> Mr. Heddon has just patented and offered to the public a new hive which combines in principle the Langstroth and the Huber. I have never tried this hive, and so, guided by the rule I have always adopted, I do not recommend it. Yet the experienced bee-keeper can often judge correctly of what he has never tried, and I will add that I fully believe this hive, and the method he gives of manipulation in his valuable book, are well worth our attention. Mr. Heddon is so able, that he rarely recommends what is not valuable. Several others have tried this hive and speak in the highest terms of its value. Among these is no less an authority than W. Z. Hutchinson. At the beginning of this chapter I caution all against patent hives. This is necessary, as so many frauds have been committed under this guise; but if Mr. Heddon has given us something as valuable as it is unique and original, he well deserves a patent, which should be thoroughly respected, as should all worthy inventive effort.
>
> The points of excellence claimed for this hive, and I believe from my experience that they are valuable, are easy contraction of brood-chamber, quick inversion of the brood chamber or section case, ease and quickness of manipulation, and the interchangeableness of the brood chambers forming the hive, the power we have to get all light-colored honey in the sections if we so desire. Mr. J. M. Shuck has also patented a hive for which he claims the same advantages gained in the new Heddon hive. I have not seen this hive, but recognize in Mr. Shuck an able bee-keeper and a man of rare inventive genius.

On pages 88 and 89 is described the use of the curious little notch found in the fore legs. That our readers may better understand, we reproduce the cut, which appears below.



ANTERIOR LEG OF WORKER, MAGNIFIED.

This little notch, or flute, is shown at C; and in speaking of its use to the bee, the writer says:

> On the anterior legs of bees, between the tibia and tarsus, is a curious notch, C, covered by a spur, B. I have found this in nearly all Hymenoptera, except the saw-flies, where it is very abortive if present at all. This is principally used in cleaning the antennæ, as is easily proved by dusting these organs with chalk, pollen, etc. This cleaning of the antennæ is best studied by observing wasps. After scraping off the antennæ the leg is cleaned by drawing it between the mandibles, or between the joints of the middle legs.

In the previous edition, if I am correct, Prof. Cook was not certain as to the real use of this little notch, though he suggested that it might serve various purposes. To satisfy myself I dusted the antennæ of several bees with flour, and noted the results. The movements of the bees were so quick that I could not determine exactly how it was done. Whenever the antennæ, or feelers, were dusted, they were quickly cleaned; but how? With a magnifying-glass, after the antennæ were thus cleaned, I examined closely the little notch at C. It did not take long to discover there the wheat flour, which evidently had been scraped off the feelers. After repeated watchings, a bee finally moved his leg so slowly that I saw exactly how it was done. I further tested the matter by besmearing the antennæ with honey. The same result followed as before. As the power of delicate touch, and, by some authorities, hearing and smelling as well, is supposed to reside in the antennæ, it is highly important that these organs be kept perfectly clean by some such contrivance as that shown at C.

These, I believe, are all the important changes as made in the latest edition. It is to be regretted that the new matter has been set in a slightly different-faced type, rather marring the appearance of the page where the two kinds of type (though both are supposed to be "long primer") come together in contrast. This is brought about, I suppose, by the fact that the book has been printed at two different offices, each of which had its own kind of long-primer type. However, to any one not a printer, nor interested in printing, I suppose this difference in type would not be apparent.

ERNEST.

TROUBLE AT THE HOME OF THE HONEY-BEES

For the thing which I greatly feared is come upon me, and that which I was afraid of is come unto me. —JOB 3: 25.

DEAR FRIENDS, when I told you in our last issue that we had Canada thistles on our plantation, I had no idea that I should be obliged to chronicle, in a few days more, that we had foul brood in our own apiary. I have for many years feared that, sooner or later, something of the kind would happen, and I once told our good friend D. A. Jones that I could think of no calamity so dire as this. He told me not to worry, but that, if we ever got it, to write to him and he would come down and cure it for us for nothing. You know that is just like him for all the world. Well, we have not taken up this kind offer, for the reason that the disease as yet has made its appearance in only ten colonies out of over 400; besides, according to his description in his little book, "Foul Brood, its Management and Cure," it is not the real *virulent* foul brood, but what he defines as "'dead' brood." The larvæ die at different stages, and either become soft and pasty, or dry up in the lower side of the cell. The sealed brood has usually pinholes through the cap, but the cap is not sunken. The well-known disagreeable smell accompanies it, and this alone tells when it has got a foothold in a hive. Do you want to know what we have done? Just this: Every comb in every hive containing even a trace of it has been burned up by throwing them all in the furnace under the boiler of the engine. We are going to starve the bees until the contents of their honey-sacks are nearly or quite exhausted, then put them on good new combs. The hives will be thoroughly scalded by a jet of steam from a rubber hose. Meanwhile we will fill no orders for bees, queens, or brood, from our apiary, unless our customer has seen this sheet, and expressed himself willing to have his orders filled from our apiary from colonies that have never shown a trace of it. Orders as they come will be filled promptly, as usual, from the apiary of Neighbor H.

Now, then, how did it come about? I can not tell, unless it was from honey we had purchased — possibly from a leaky barrel; and this has decided us never more to purchase honey in barrels. It must be in tin cans; and should any leakage occur from these they are to be mended and washed before the bees can have a chance to gain access by any possible means to the outside of the cans. It may have been brought to us in another way. We are purchasing wax constantly, and it comes from almost every quarter of the globe. The wax cakes often contain more or less honey daubed on their surfaces, and sometimes a bee or two gets into the wax-room and goes to work on these wax cakes. By the additional room given us by the building of our new factory, we are going to have all wax taken in the original packages at once to a darkened room. The wax is to be so thoroughly protected, both by doors and windows with wire cloth, that no bee gets outside or inside alive. Some may ask why we should not cure the foul brood, instead of resorting to such destruction of valuable property. If I had only a few hives, and could give them my constant supervision, some such plan might answer; but as it is, I prefer to burn up every thing it has touched until no further trace of it can be found. We are going to treat it as we did the Canada thistles; and may God help us to conquer, for *your* sakes as well as our own.

I feel quite certain that there will be no possible danger of the disease being transmitted by selling queens, or even pounds of bees. It is, however, everybody's privilege to decline buying from an apiary where foul brood has existed, if you wish. In regard to the chances of contagion, even by taking queens from diseased colonies, we make the following extract from D. A. Jones's little book referred to above:

> I have never yet known the disease to be contracted by either queens or drones, although I have experimented largely in that direction, taking queens from foul-broody colonies and placing them in healthy colonies. I was once informed by one of the best bee-keepers in the United States that he had tried the experiment scores of times; that is, selling the queens out of healthy colonies, and replacing them with those from the worst affected foul-broody colonies, and in no instance did the disease appear in these hives, the apiary being three miles from the one in which the diseased colonies were. The gentleman had several bee-farms. I do not mean to assert that the disease *never has been* carried by queens or drones, but I honestly believe that if it *has ever been* the case, that the honey taken with them had *something* to do with it.

Please remember, friends, there is not a cell of foul brood now in our apiary—at least, none that we can discover; and every comb of our over 400 hives has been carefully scrutinized.

PREVENTING SECOND SWARMS.

TEN QUEENS IN A COLONY AT ONE TIME.

ABOUT two years ago, if I am not mistaken, Prof. Cook gave a method of preventing increase of colonies by swarming. Briefly, the plan was to remove all queen-cells and two frames of brood from the colony that cast the last swarm, and then hive the new swarm in that colony. I have tried that plan for three years, having practiced it one year before the publication of Prof. Cook's article. Generally the plan has been very successful; but in one respect it has proven a failure. To prevent misunderstanding I will give my plan in full. After warm weather began, so that the bees could fly, I began feeding to stimulate brood-rearing, so as to have early swarms, and most colonies swarmed in fruit-bloom. Probably all would if I had not put more frames in some of the hives, giving the bees more room.

When they began swarming I would remove all queen-cells from the hive that cast the last swarm, take out two frames of brood, and give to some nucleus, replacing them with empty combs, and put the next swarm in that hive. If I had not put on any crates I did so at once. If a crate was on the hive I put on another. My queens are all clipped. As for swarms coming out in fruit-bloom, the plan was a success. No fighting, no afterswarms; the queens were all accepted at once. About once a week I looked through for queen-cells, but seldom found any. But after white clover was in bloom, the old stock and the swarm would go to fighting unless I smoked them thoroughly, and the queen was killed in every instance. This has been my experience for three years. Not a queen has been killed before the bees began to work on white clover. Every one has been killed after white clover began. I should like to ask if any others have had like experience.

On the 17th of May a colony cast a swarm. I caged the queen, moved the hive around, and put a new hive on the old stand. When about half the swarm had entered, another colony cast a swarm—a second swarm, as I had purposely left the queen-cells in. This swarm at once began to enter the hive with the other. I caught the queen, and let the two go together. I gave them a frame of brood with eggs, and did not look at them for more than two weeks. Then on opening the hive I found 12 queen-cells, 7 of them open. On further search I found three young queens on the frame. Of course, I thought the queen was dead; but, to my surprise, on the third frame I found the old queen and a young queen on the same side of the comb, and another on the other side. On the next frame were the other two. The next day I found two more queens, and the next day another, which had hatched the previous day—ten live young queens in one hive! Can you equal that? The colony from which the larger swarm came last year, I "unqueened," and they sealed 36 queen-cells on one frame. The colony cast a swarm, and that is the one that cast the second swarm. I unqueened them this spring, and they built and sealed 29 queen-cells; so queen-raising would seem to be hereditary in that colony.

As so much is said on folding sections, let me give my way. Take a board about 12 inches long, 6 wide, and one thick. Cut off one end perfectly square; nail on a piece of board about five inches wide and as long, so that it shall make an exact right angle, and be exactly as high as a section; 4¼ inches from this, nail a cleat on the bottom board. Bend the section in the middle, and put the corner thus formed against the cleat; press the sections into the angle formed by the upright; now bend the top down, and one blow of the mallet will finish the section. After a few minutes' practice, the section can be pressed into the form, ready for the finishing tap, as quickly as it can ordinarily be bent together, and it is hardly possible to bend one out of true.

S. J. BALDWIN.

Nelson, Ohio, June 25, 1886.

Friend B., you have got a queen that seems willing to permit young queens to be reared in the colony without molestation. Such queens are found in almost every apiary, every little while, and they are very valuable for queen-rearing, inasmuch as we can rear queens right along and still have a queen constantly keeping the hive populous. Such queens would be as great an acquisition to the bee-keeper as non-sitting hens are to the poultry-raiser. The matter has at different times been pretty thoroughly discussed in our back volumes. By all means, save every one of those queens, and see if you can't get a strain of bees that will allow several queens in a hive all at the same time. A race of queens that won't quarrel! just think of it, friends! what an acquisition it would be! and I feel just as certain that it can be managed as that we can get a strain of kohlrabi-seed or cauliflower-seed that will give plants true to name every time. Prof. Cook has for a good many years scolded because we don't try to improve our queens, instead of trying to produce them so cheaply. Why can we not do for bees just what the world is doing for small fruits, garden vegetables, and the like?

QUEEN-EXCLUDING HONEY-BOARDS.

CARNIOLAN BEES, ETC.

THE value of perforated zinc in honey-boards, I have this season established to my full satisfaction. The question had been, Is it not an obstruction to the work of bees in supers? I can now answer that it is not. Its introduction to bee-keepers has made possible several new inventions in hives that, without it, would be quite impracticable. By its use, surplus-receptacles can be placed over very shallow brood-chambers with success; and, if desirable, we can take in marketable shape almost every drop of honey a colony can produce. In the spring we can build up colonies, and enlarge the brood-nest to the full capacity of the queen; and then at the right time we can limit her work and prevent the rearing of non-producing workers to any desirable extent.

The feature of greatest merit in the new Heddon hive is the horizontally separable brood-chamber; and my experiments so far this season have proved that it is worthy of all the praise that has been bestowed upon it. But, as predicted in GLEANINGS for March 15, it is impracticable to use such a hive on the contraction plan in the production of comb honey without a queen-excluding honey-board. Three years since, I found that it was impracticable to contract brood chambers to any great extent without limiting the queen, and then I made my first wooden queen-excluding rack, and at the same time tacked narrow strips of perforated zinc on a slatted honey-board. The latter worked very nicely, and, in fact, the wooden one did very well, as also a rack prepared with long strips of tin; but the metal could not be held properly with brads, and so last season I conceived the idea of making saw-cuts in the edges of the slats with a thin circular saw, and inserting the zinc in them. This plan of using the zinc, I found to work perfectly; and I believe that I was the first to conceive the idea, as well as to construct a honey-board of this kind. Certainly I was the first to make it public, and think I am fully entitled to give the invention to the public as I have done. After testing the invention I sent a hive to the Michigan State Fair, having such honey-boards, and it is just possible that my friends there who claim to have been original in conceiving such use of the zinc had there seen my invention and forgotten about it. I believe, however, that these friends do not claim to have constructed such a honey-board before this time—only to have conceived the idea.

After a number of trials I found that the strips of zinc work the best when cut wide enough to make three rows of perforations. The slats were made nearly as wide as the strips of zinc. My new hives have all been made *narrow*, to hold only 7 brood-frames in each case, so that the honey-board is only 10⅝ inches wide. It is essentially the new Heddon honey-board, made substantially as friend Hutchinson describes on page 527. As I now construct it, it has 4 of the strips of zinc, giving 12 rows of the perforations for the bees to pass through; but in the honey-board, made with 7 slats to correspond with the frames, I could get only 8 strips of the zinc in, making only 8 rows of the perforations.

In the *C. B. J.* for June 23, this honey-board is illustrated; but if made as there described, part of the perforations will be useless, from the zinc sinking too deep into the saw-cuts. Again, the use of the cross-bar in the middle is unnecessary, as there is sufficient rigidity of the board without it; and I make the slats only 5-32 of an inch thick. In cutting up the sheets of zinc we cut out every fourth row of the perforations, leaving the solid strips of zinc whole. In making this new honey-board I have used friend Root's new perforated zinc with success, and am able to recommend it to bee-keepers as perfectly adapted to the purpose designed.

THE CARNIOLANS.

Dr. Morrison inquires about the quality of the workers of the queens he sent me last fall. She proved to have mated with a Syrian drone, as he had anticipated; and the workers, though well-marked hybrids, were fully as gentle as Italians. The queen was very prolific, and filled the equivalent of eleven L. frames with brood, and then led a swarm June 9th. Sections had been adjusted, and a start in them made. The swarm was very large. After filling a space equal to 8 L. frames they began in the supers, and have made to date, in black-walnut sections, 40 lbs., and the parent colony as much more, and they will raise the amount to 100 lbs. They reared about 50 queen-cells and an innumerable quantity of drones, although they had not much drone-comb. All were jet black; and as I did not wish them to cross with my white queens I opened the hive and destroyed them. The comb honey produced was capped very white, but not whiter than that made by my own strain, some colonies of which have already made 125 lbs., and will probably reach 150, which I consider a large yield for an exclusively white-clover district.

The queen obtained from GLEANINGS office at the same time as Dr. Morrison's, was striped and very pretty. Her workers appeared like Italians, with an occasional black bee. The drones were also like Italians, with some quite dark. This queen also led a swarm about a week later, was very prolific, and left 48 queen-cells. Both colonies were in the new Heddon hive, and every one of the queen-cells was built from the edges of the bottom-bars, so that, on separating the hive, we found them all sticking straight out, ready to be cut off. It beats the Alley plan of getting queen-cells, all hollow.

The swarm having friend Root's queen has made only 20 pounds of surplus, and the old colony nothing, although all the frames were reversed, and the brood raised against the sections. These bees are evidently not fair representatives of the Carniolans; but Dr. Morrison's are good workers, and I have reason to think the Carniolans are generally. It has been alleged, that they are given to much swarming, but I doubt it. The yellow specimens of the race that now and then crop out should be destroyed. Especially ought all yellow-marked drones to be destroyed by the breeders of these bees, and the race kept pure. DR. G. L. TINKER.

New Philadelphia, O., July 8, 1886.

We are much obliged for your candid and impartial opinion of the Carniolans. However, as Dr. Morrison's queen was crossed with a Syrian drone we can hardly determine whether the results would have been equally good had the progeny of the queen been pure Carniolans. We are glad to note that the crosses of the Carniolans are not cross. As your experience with the strain of Carniolans which we have in our apiary coincides with our experience, we think we were right in saying that they were inferior workers. We are glad to hear that the strain Dr. Morrison keeps has done much better.

Please accept our thanks, doctor, for the beautiful workmanship on your queen-excluding honey-board sent us. We may have an engraving of it made. These honey-boards, made partly of wood and partly of zinc, promise to be an important implement in the apiary; and since the subject is up, we give below an article from friend Heddon, which we extract from the *Canadian Bee Journal* of July 7. Dr. Tinker already alludes to the cut of a honey-board, given in the *C. B. J.* for June 23. It seems that many minds are working on this very thing; and although the different experimenters have different ideas, as usual, we think we shall ultimately come along to what is pretty nearly common ground. Below is the article from friend Heddon:

HONEY-BOARDS.

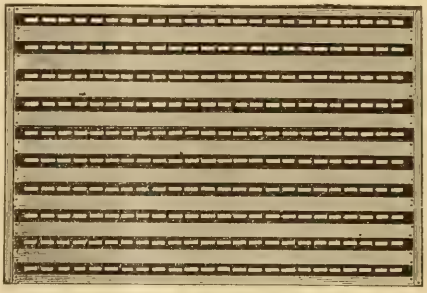
Referring to your "Own Apiary," page 245, where you illustrate a queen-excluding honey-board of combined wood and metal surface, I will say that we are experimenting on an extensive scale with these boards, the idea of metal strips being let into grooves in the sides of our honey-board slats having originated with at least four different persons a year or more ago. I may name Dr. G. L. Tinker, who wrote about it not long since; C. E. Boyer, my foreman; W. Z. Hutchinson and myself, neither being aware of the other's device, and all giving it to the public. Here we are using it as follows: We make our wood slats the same width and thickness as ever, leaving the spaces between them the same three-eighths inch, and slide in metal strips having one row of openings only, and these strips we get made to order, with their edges all smooth and whole, and I can not see how smooth edges are secured by cutting strips containing "two rows" of openings, any more than a strip of only one row, which leaves the jagged edges, which work just as well in the boards, but are more trouble to insert. My experience and observation with bees fully convinces me that one row of openings over the center of each top-bar, below will give far more than ample passage room for the strongest colonies. I will tell you why I object to using metal strips wide enough to contain two rows of openings: It necessitates, as in friend Hall's case, five-eighths space between the slats. Now, if the bee-space is right between the surfaces of the slats and the surfaces above and below them, of course it is about one-eighth of an inch larger between the surfaces of this metal and the surfaces above and below it. I think we should be more apt to be troubled with brace-combs where we used two rows of openings, than where we used one, as I have it. I am not sure but quarter-inch between the slats would be better than our three-eighths. I can tell at the close of this season. I have used brood-frames with top-bars three-eighths inch thick, and varying in width from thirteen-sixteenths up to one and one-eighth inch, and I have found brace-combs built between their *edges* to a greater extent in proportion as the bars were wider and the spaces narrower; but this kind of bracing is between the edges of the bars, and not between their surfaces and other surfaces above and below them. In testing some thirty all-wood queen-excluding honey-boards, made so by widening our quarter-inch slats till the spaces between them were the same as metal openings, in width, we were astonished to find that the bees built comb in these spaces till two thirds of the passageway was stopped. We tried them two seasons, realizing this and other disastrous results, and have discarded them entirely.

HEDDON'S HONEY-BOARD.

"What is it?" I receive many questions like this. Will you kindly let me reply to many at once? An implement, machine, or manufacture, may take its name from him who constructed, devised, or invented it. A device may or may not be an invention; and it is a question as to whether placing these strips of metal in grooves in the slots can be called an invention or not; but whether it is or is not, it is certainly a device, and preferable to nailing it on to one side as before. My honey-board contains two important features, each of which performs very useful functions, and which I invented some eight or ten years ago. 1. Arranging slats within a frame or rim, in such manner that one of their surfaces shall be even with one surface of the rim, while their other surface shall be a bee-space lower than the other surface of said rim. This gives us a honey-board containing a bee-space within itself. The rim gives it solidity, when the slats are made as thin as quarter-inch, as we make them. 2. Arranging slats, forming a honey-board, in such manner that the center of each slat shall run parallel with, and rest directly over, the space between two brood-frames below, and the center of the top-bars below shall come directly under the spaces between the said slats. Any honey-board that contains neither of these principles is not a Heddon honey-board; but one that does contain either of them is. Extensive and repeated experience with these boards not only gives me the knowledge that their usefulness by far outweighs their cost and manipulation, but they are in no way whatever any detriment or hindrance to the bees and their work. You will notice that, by fitting your hives and supers to a honey-board containing a bee-space, the same can be used without the honey-board, all bee-spaces remaining as perfect as when used in connection with it. This honey-board has never been patented, except in combination with my new hive, as described in past numbers of this journal. It is used and highly prized by such producers as Dr. C. C. Miller, R. L. Taylor, W. Z. Hutchinson, Prof. A. J. Cook, and scores of other equally expert bee-keepers, less known to the public. I am confident that it has come among us to stay. JAMES HEDDON.

Dowagiac, Mich.

Below we give an engraving of a honey-board made on Heddon's plan, fitting the Simplicity hive.



QUEEN-EXCLUDING HONEY-BOARD, ARRANGED SO AS TO HAVE THE OPENINGS JUST OVER THE TOP-BARS OF THE BROOD-FRAMES.

The engraving shows the honey-board with the smooth or level side uppermost. The wooden slats are 1 inch wide, and a little less than ¼ inch thick. The spaces between them are ⅜ inch. The end-pieces to which the ends of the slats are nailed were originally ⅞ x 9-16. A rabbet is made in one corner of this strip, ¼ x ⅜. For use on the Simplicity hive there is no frame clear around the honey-board, as Heddon has them; that is, the honey-board is composed of simply the end-pieces and the slats. It is put on the hive with the bee-space downward; and as our crates are all made with bee-spaces under the sections, when the case is set directly on the honey-board it comes all right. The price of these honey-boards is 25 cents each; $2.00 for 10, or $18.00 per 100. If wanted by mail, add 22 cents additional for postage.

CARNIOLAN BEES GREAT WORKERS.

ARE THEY A PURE RACE?

JUNE 3d I put a swarm of Carniolan bees into a two-story Simplicity hive with 20 frames filled with wired Van Deusen foundation. In eight days after that I extracted, from the upper story, 40 lbs. of white-clover honey, and left the lower ten frames filled with honey. On the 17th of June I extracted, from the same combs, 38 lbs. more; and then to see if Carniolans would get tired of drawing out foundation I gave them ten frames again, filled with Van Deusen flat-bottom foundation. Yesterday, July 8, I extracted 50 lbs., capped, as white as snow, from these same frames of foundation, and the ten combs below are still full of brood and honey.

THAT QUEEN OF ILA MICHENER'S NOT PURE CARNIOLAN.

Your publication of Ila Michener's letter gives me a right to a reply. I do not believe he has a Carniolan queen, and some time since I wrote him to this effect. I may have made a mistake, and sent him a hybrid Italian last year. If I did, it was not the result of any less care in breeding queens than is exercised by the most careful. As an instance of how such a mistake may occur: A few weeks since, I put an after-swarm into a nucleus hive with foundation and one frame of brood. Two days after, I removed the virgin queen, intending to give a Carniolan virgin the next day; but the next day, on examining the colony I found another virgin queen. Now, suppose I had run my Carniolan queen into that nucleus without knowing that other queen was there, wouldn't I have sent that other queen to Ila Michener or somebody else in ten days? This is but one instance of how a mistake *may* be made. I know of others, and am convinced that, with all the care the most careful breeder may give the business, errors will happen. Probably less likely, but yet possible, the receiver of a good queen may lose her and not know it. For instance, I removed, a few weeks since, a queen from a strong colony, where I had placed her some days previously, to a nucleus hive in a distant part of the yard. Three days after, I found a laying queen in this same hive. There is positively no mistake as to these statements. Now, suppose I had smoked this colony and given them a queen on the third day, not having found the other queen, accidentally, and on the fourth day "found her laying," wouldn't it have been another queen? and wouldn't I have sent a complaint to GLEANINGS that somebody had imposed on me? I have seen a great many other methods through which mistakes may happen on the part of the breeder or the buyer of queens, for I do the whole of the work in my apiary; and keeping a written record on each hive I have often seen these anomalies.

Some time before seeing Ila Michener's letter in GLEANINGS I wrote him in substance as above, and offered to send him another queen, but have had no reply. My offer still holds good to him, for he is doubtless one of our "square" men.

"If they are not a pure breed, would it not be best to drop them right where they are?" This is your question on page 548. Now turn to page 527 and read from W. Z. Hutchinson about the "Swarming-out Mania" of Italians — real Italians, and not hybrid Carniolans (to say the best we can for Ila Michener's); then read what Mr. Robbins says about his inability to prevent excessive swarming, on p. 540; then the "Swarming Mania Raging," by John Nebel & Son. If this is the trouble Italians are going to give us, would it not be best to drop them just here? Oh, no! I am satisfied that my Carniolans are fully equal to Italians as workers; and that, either purely fertilized or fertilized with Italian drones, their workers are much gentler and pleasanter to work with than Italians, and these are the qualities I want. I don't give much for the dress or adornments of bees.

"ARE CARNIOLANS A PURE RACE?"

I can't tell. Ask Mr. Benton or some other reliable person on the ground. He says Italians are not a pure race, and that settles that question. I can only say that my imported Carniolan queen produces no progeny with yellow bands; but they are of a uniformly steel-gray color.

GETTING BEES TO WORK IN SECTIONS.

GLEANINGS for July 1 contained the most directions I know any thing of. If I want increase of bees I give all the comb and foundation in the brood-frames I can get. If I want work in sections I put into the brood chamber — one on each side — two wide frames filled with sections full of comb or foundation, and, between these, seven frames with an inch starter of foundation, and set on top of the hive a combined shipping and honey-crate (I never use these for shipping honey) also filled with sections full of foundation. I am never more certain of honey in sections than when a swarm of bees is put into a hive arranged as above.

S. W. MORRISON, M. D.

Oxford, Chester Co., Pa., July 8, 1886.

We are very glad to get so good a report from the Carniolans, especially as our experience with them has been rather discouraging. It would seem that you have a better strain of these bees, friend Morrison (see in the article above, what Dr. Tinker says of the comparative working qualities of *our* strain of Carniolans and yours). We often notice the same difference between different strains of Italians; and it would be nothing strange if Carniolans were like them. Before the clover bloom, and before the imported Carniolan colony had cells started, or had any thoughts of swarming, they were more than once on the eve of starvation, while the Italians were supporting themselves easily. Even when the honey-flow commenced, although the Carniolans were making no preparations to swarm they did not begin to fill the combs in their brood-chamber, though it was a large colony. When the statement was made, that they were poor workers, it was done because we felt it our duty to do so, even at the risk of spoiling our own trade in untested Carniolan queens. We have not, and do not now claim, that, because *our* Carniolans were inferior workers, therefore *all* are. Indeed, Dr. Morrison (whose statement we have no reason to doubt) has a strain of these bees that are good workers. If any are desirous of securing a Carniolan queen, we would with pleasure recommend them to him. In favor of the Carniolans so far as we have observed, we will say this : They are very quiet, easy to handle, adhere to the combs, are good breeders, little inclined to propolize, and are, perhaps, a trifle larger than the average Italians. In disposition they are quite different from blacks ; but nevertheless in *appearance* they very much resemble them. In fact, it seems that Dr. Morrison himself does not always distinguish the difference, or he would not have made the mistake in sending a *hybrid* queen to Ila Michener, when he intended to send a *Carniolan.*

ERNEST.

ARE DRONES FROM A PURE MISMATED QUEEN PURE ?

SOME VALUABLE FACTS FROM FRIEND SWINSON.

FRIEND ROOT:—On page 545, in your foot-notes, replying to F. Clare, as to hybrid bees, you state that drones from a pure Italian queen, which has mated with a black drone, will be pure Italian drones, which, then, would be just as good as drones from an imported Italian or any other Italian queen. I have read this same thing repeatedly, from different parties for the past four years; but I found, on trial, that it won't work according to theory, worth a cent. Why, friend Root, if this were so there is no need of a man having 25 or 30 colonies to Italianize to buy more than two pure Italian queens to do it.

In 1884 I had 20 to 29 colonies of blacks, except 3 pure Italians. In May I killed all the black queens, and reared in each hive an Italian queen; these, of course, were nearly all mated with black drones. In August and September, after all the black drones were gone, and nothing left in the apiary except pure Italians and drones from these pure mismated queens, I again removed all the hybrid queens, giving cells bred from the pure stocks, as before. Now, when the progeny of these queens hatched out they should have been pure, according to this theory; but, not so; they were nearly every one hybrids, as in the spring trial, except that none of the progeny were full black bees, as in the first cross, but they were from one to three mingled-banded bees, such as hybrids always show more or less of. They were exactly what C. Kingsley sent me last spring as tested Italian bees—nothing but hybrids, yet pure, according to the theory. I continued to breed up queens, and have them mated to these drones as late as I could; and, not being able to produce pure Italians in that way, I sent off and bought 20 odd queens of S. D. McLean, of Tennessee, and introduced them in place of these queens mated with drones that were bred of pure queens mismated.

TO START BEES TO WORK IN SECTIONS,

Or any part of a hive you want them to go to work in, is a very simple thing to do, if they are working anywhere. This is the way: Take a piece of comb having sealed and unsealed brood in it, and place in one of the sections which you want them to occupy—box or any other contrivance you want honey stored in, and they will certainly go to work around it; they won't desert brood and larvæ as they do honey placed up in sections to start them; and as soon as they get well started and under way you can remove the piece containing brood. This is a never-failing remedy; it will start the most obstinate colonies, and is very simple and easy of trial.

CARNIOLANS.

They do show bees having two yellow bands, and even an occasional one with three; but they are a smaller and more reddish-looking bee—rather dwarfish-looking fellows compared with the regular Carniolan workers; so, at least, do the Carniolans I got, and they, too, are from imported mothers, two of which were sent me by Mr. Benton in August and October last, as first-grade queens. They are very gentle indeed—good workers, but they make little show for it in their hives, in the way of surplus, as they are such excessive breeders that they use more than most bees do in breeding. This is the only reason I can give to account for their lack of stores, as they certainly do work well. They just teem with fertile workers, if made queenless for six or seven days. They have plenty of fertile workers in their hives, even when having a queen hatched in it several days old. They beat Henderson's Syrians for fertile workers. 4—A. L. Swinson, 71—72.

Goldsboro, N. C., July 5, 1886.

Friend S., I do not see that you demonstrate at all that the drones from pure Italian queens, when crossed with a black or hybrid, are *not* pure Italian. The theory was first propounded by Dzierzon, and then verified by that careful experimenter the Baron of Berlepsch; and, if I am correct, it has not been proven untrue as yet. Your experiment upon the point in question is faulty, in that there might have been, and probably were, black bees within your immediate vicinity. Besides, it seems to me you could not prove there *were* no black bees near you. At the bottom of your letter I see you have been in the business for four years; so at that time (1884) you could hardly have Italianized the wild bees in your vicinity.—The plan you mention, of inducing bees to go into sections, is the same as that mentioned recently by Doolittle.—Your experience with the Carniolans is similar to ours, that they make little show of honey in the hives. Ours, however, do not even seem to work well. If Carniolans teem with fertile workers when queenless, it certainly is a bad trait. As we have raised no queens from our Carniolans, we have not tested them in this particular. I would recommend you, friend S., and all others who feel undecided about the drones from pure mothers, to go over again our little book called the "Dzierzon Theory." It is mailed on receipt of 12 cents.

CARNIOLAN BEES, AND ARE THEY GOOD WORKERS?

FRIEND J. B. MASON TELLS HIS EXPERIENCE WITH THEM.

In Gleanings for June 15, Ernest strikes a blow at the Carniolan bees, pronouncing the verdict upon them as worthless, as he says they are poor honey-gatherers, and concludes by warning the friends about investing in them. This seems hardly fair to pronounce judgment on this race of bees in that way, until you had tested them further than one or two queens, especially as I believe Mr. Benton held that there must be some mistake about one of them. Had I judged the Italian race of bees by the three first queens I ever had, or from two that I bought later on from a very prominent breeder, I fear I should most surely have condemned the race, for they were as near worthless as Ernest describes the Carniolans. They were not self-supporting; and from the reports of others I at once decided that there were better Italian bees than I had got; and after procuring some from another strain I found a vast difference in them.

For two years past I have been testing the Carniolans, and I must say I have found them superior in all respects to the Italians for comb honey. My Carniolans do not show yellow bands, as Ernest speaks of, and they have no lazy or sluggish actions, but are among the very best workers I have ever seen. They are certainly better comb-builders than any Italians I have ever had, and build whiter combs, and take to the boxes more readily; and as for gentleness, they are gentler than any I have had. If one wishes for nothing but extracted honey, perhaps there may be none better than the Italian bees.

It is evident to my mind, that these so-called Carniolans that have bands are hybrids. You may say they were imported. Well, the next thing is, are there no hybrids where they were reared? I received two imported Italians from a dealer whom I think you would pronounce perfectly honest; but I pronounced them both hybrids, and I will bet a trifle they were. A. I. Root pronounced them so, as I sent a sample of the bees.

In July 1st Gleanings, Ila Michener speaks of procuring a queen of S. W. Morrison, and he says she was a hybrid, temper not excepted. Well, now I should ask, Did not S. W. Morrison sell her for a hybrid or an untested queen? Mr. Michener asks if we are not being imposed upon, and getting back our old bees again. I answer, no; the characteristics of the Carniolans differ as much from the German bees as do the Italians. I think Mr. Michener has no need to regret that any of the Carniolan blood has been introduced into his apiary, provided comb honey is his object. I believe, friend Root, if you hold your judgment on these bees until you have tested them further, and until you get the reports of those who are now testing them you will have good reason to change your views on them. Will you please allow me to send you a Carniolan queen to test, and give a report what you think of her? J. B. MASON.

Mechanic Falls, Me., July, 1886.

You are right, friend Mason. It is hardly to be expected that the workers from two queens would be a fair test of the race in general; but if you will turn back to the article to which you refer you will see that it is so stated. Perhaps we were a little hasty in drawing deductions; at any rate, see what Abbott L. Swinson says of them. We are ready for reports now from others; and as it is hard to tell definitely from the worker-bees raised from the daughters of the imported Carniolans, I should like to have reports from the worker-bees from the *imported* Carniolan queens themselves.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY EV. W. D. RALSTON.

CHAPTER VIII.

BRIGHTENING PROSPECTS.

TOMMY thought over their debt day after day. It worried him. He knew, from talking with his father, that they should need at least seven new hives and ten pounds of foundation for another season. This would likely increase their debt to thirty-six dollars, before they would have any honey to sell. In the wood-shed was a carpenter's bench and a number of tools, for Mr. Meek liked to work with lumber. He also allowed his children to use his tools, and had often instructed them in the use of these tools.

One dav Tommy had been at work making a rabbit-trap, and had just finished it when Jane came in after some wood. She looked at the trap, and admired it very much, and then asked, "Why could you not make our *hives?*"

Tommy said, "I believe I could, if father would let me use that planed lumber that is upon the joists."

When they asked their father, he said, "If you make hives that will answer, you can use the lumber, free of cost, and I will also furnish you nails; but if you merely waste my lumber and nails, or make some old rattle-box of a thing, and call it a hive, I will charge you for both."

Said Tommy, "I will be careful, and do the very best I can."

Mr. Meek then told Tommy and Jane to bring the empty hive into the wood-shed. He went there, measured its different parts, and sawed out one piece of each. These he directed Tommy to mark, and use as patterns; and Tommy found them a great help.

For some days Tommy and Jane worked carefully at the hive, and at length the first one was finished, and their father was asked to examine it. He said it would do, but showed Tommy where he had made some mistakes, and also where it might be improved. As Tommy always attended school, when in session, the seven hives were not all made and painted until May. One day, when the children were from home, Mr. and Mrs. Meek were in their storeroom looking at their hives, and Mr. Meek said to his wife, "If those children never sell a pound of honey, what they are learning by engaging in this work will more than pay all expenses."

As the lumber and nails were furnised by Mr. Meek, the seven hives cost only $1.50, for oil and paint.

The four colonies were wintered in the cellar, and placed in the yard the following spring.

The one in which was the new queen was found badly diseased. It had dysentery, and the hive was in a filthy condition. After the bees had a flight, the combs were removed by Mr. Meek to another hive, and then warmly covered with cloths. It finally rallied, and, by exchanging an empty comb for one of sealed brood from one of the other hives, it became strong by the time white clover bloomed.

That winter there had been much snow covering the ground, and protecting the clover; and in the following summer there was a most bountiful bloom of white clover. The children, under their father's directions, had prepared cases of nice clean sections, ready to be placed on the hives. They had also prepared their frames for the lower story of the new hives by fastening strips of foundation two inches wide along the top-bars. They did this to encourage the bees to build straight combs. Long before the time came for placing the sections on the hives, they had all things ready; or, as Mr. Meek expressed it, their dish was "turned up to catch the honey."

When they saw the white clover beginning to blossom, sections for surplus were placed on the hives. When these became filled they were elevated, and others put under them; and in this way the bees were kept busy, and no sections were removed until every cell was sealed.

When swarms issued they were hived in nice new hives, with wide starters of foundation in every frame, and in a short time they had filled their hives with nice straight combs, and had begun work in the sections, a case of which had been placed on all first swarms a few days after hiving.

As abundant room for the storage of honey was always afforded, and as the hives not shaded by the trees and shrubbery were well protected from the sun by boards leaned up against them, there was not much of a disposition to swarm. It seemed that the honey so abounded in the white clover, and they were so busy gathering it, that they forgot all about swarming.

They had only five swarms, so when the season closed, the firm possessed nine colonies; but the pantry shelves were groaning under the load of nice comb honey that had been placed on them. There was not much basswood in reach of their apiary, therefore this honey was mostly from white clover.

After the clover-yield, all the hives, by Mr. Meek's directions, were reduced to one case of sections, to await the yield from fall flowers; but for some reason there was no honey gathered from that source. When these cases were removed they were found empty. Although many sections were partly filled with light honey, when the flow from that ceased, all were found to be empty, the honey having been carried below; but an examination showed that the hives were heavy, and that doubtless all had abundant stores for winter. They found honey in the fall flowers, but not enough to send them into the sections.

The crop of honey was 447 pounds, every section nicely filled and sealed, and as white as snow. After selecting 72 pounds of the nicest sections for home use, the rest was sold to a grocer in the town at 15 cents a pound. When the firm delivered this honey, and received $56.25, they felt rich indeed. That night they posted up their books for the year. They found that their entire outlay had been only $6.75, which, added to the $20.10 owed their father for last year, made $26.85 as their entire debt. This they paid and had $29.40 remaining. They were now out of debt, and could feel that their apiary was all their own, and the question was, what to do with the rest of their money. Their mother advised them to place it in their father's keeping, and use it as needed to provide supplies for their apiary. Their father said that as they had three empty hives, he thought ten new ones would be abundantly sufficient to hold next year's swarms; that he had no lumber on hand, and that, if Tommy made hives, he would have to buy lumber, and that it would be better to order hives in the flat from the supply-dealer. These would be planed, and cut out all ready to nail, and would cost only a little more than the lumber. Ten hives would cost 85 cents each; so the money was sent for them. They also ordered 1000 sections.

Mr. Meek wanted Tommy to study diligently; and he well knew if ten hives had to be made by him it would interfere with his studies; therefore he advised buying hives ready to nail. To nail and paint these was a comparatively short job, and it was all done before school opened.

One evening, late in the fall, Mr. Meek returned from a short journey he had taken in his buggy. The children ran out to greet him, when he lifted a large tin can from his buggy, and asked if they knew what it was. After they had examined it Tommy guessed it was a churn; and Jane said it was a machine for making apple-butter.

At length he told them it was a honey-extractor. They had read about that machine, and its use, but had never before seen one. This excited them, and they were for running with the news to mother, when their father called them back to care for the horse, as he was chilled after his long ride. When they returned from the barn they carried the extractor with them into the house. Their father, now warm and comfortable, explained that, where he had stopped the previous night, the farmer had at one time owned quite an apiary; but an invalid son who cared for the bees had died; and as there was no one to take his place, the bees had been neglected, and finally all had died. He was selling his hives and fixtures, and had offered this extractor and uncapping-knife for three dollars. As it was not half its cost, he bought it for the firm. He then showed the children how to take a frame of sealed honey, cut off the caps with the honey-knife, and place it in the revolving frame, close by the wire netting; prepare another frame of honey, and place it on the opposite side; then turn the crank rapidly, and the honey would be thrown out, and, striking the side of the can, would run down, and could be drawn off through the honey-gate. The combs would then need to be lifted out and turned, when the other side could be extracted in a similar manner. The combs, then free from honey, could be returned to the hive, and, in the time of a good honey-flow, would soon be refilled.

He said he felt confident that more honey could be raised by extracting, but it did not meet as ready sale in most communities as the comb, and sold at a lower price. To raise extracted honey, we need to prepare our hives with two sets of frames—one below for brood, and one above for surplus. A hive so prepared is called a two-story hive. The frames in the upper story are the ones extracted.

During the winter, Tommy, under his father's direction, made upper stories for two of their hives, intending to use those two for raising extracted honey.

To be continued.

SOME EXPERIMENTS WITH CANDIED HONEY.

IS THERE ANY WAY TO PREVENT ITS GRANULATION?

ONE man writes you that, if honey is kept in a warm room, it will not candy; another says, Seal it up hot; another, Keep it in the dark. Writers seem to ignore the fact that a test made with only one kind of honey is of no value whatever.

I noticed some months ago you spoke of honey not candying, even with a zero freeze. Are you sure that a zero freeze will cause honey to granulate more quickly than the most moderate weather we have in January? I am not sure that you are not right. My experiment which I am about to give is not worth much, for the reason that it was made with only one kind of honey. You will remember the year we had a drive together, some ten years ago. The following winter I took some of your Medina Co. honey (linden, candied solid). When we got it I melted it thoroughly, put up 10 half-pint glasses, placed two in the office where there was a self-feeding hard-coal stove, perfectly warm—I should think certainly above 60° the 24 hours—two in the yard exposed to a zero freeze; two in the cellar, wrapped up in dark paper placed in a dark room; two in the hallway where it would be about the freezing-point all the time, and two in the wareroom, where it was warm in the daytime and cold at night. Now, inside of two weeks every glass was candied solid, and I could not distinguish any difference in the time that it took for each one to become candied.

That same season I went to the Shenandoah Valley, in Virginia, and bought some honey from the blue thistle, in the comb. The following May that honey was not candied. After I left there, which was in August, they had a good yield from a yellow flower, I think the goldenrod. Some of that was sent to us; and although that was taken out of the hive after what I have already spoken of, it was candied solid in the combs in the month of November.

When a man tells me how to keep a certain kind of honey from candying, then I am ready to listen to him; but when he tells me how to keep *honey* from candying, then I know that he does not know what he is talking about. I don't believe there is a possibility of keeping your linden honey from candying, and dozens of other kinds are just as liable to candy. Now, my experience has simply taught me that, if I go and buy one kind of honey it will candy quickly; and if I buy another kind it will remain much longer in the liquid state; but as for preventing the granulation in the winter season, I am as ignorant as the day I was born. I have also learned that honey placed in a glass, with a small piece of candied honey put in it will granulate in the month of July, the candied portion working like leaven, until the whole glass is in the same condition.

Some one in GLEANINGS lately made the statement, that when honey granulated shows grains, it is an evidence of purity; and that when it is smooth it is an evidence of adulteration. Now, I think he is mistaken. I go to a commission house to buy California extracted. I open one can, and find it is grained nicely—that is all I want to see. I don't need to taste it—it will suit me. I open another can in the same lot in the original package, and I have no doubt of its purity. I find it is candied, but smooth; a little darker than lard, but otherwise exactly like it in the smoothness of its appearance. I don't want it; the flavor is not good; yet I have no doubt of the *purity* of the honey. You bee-keepers laugh at people's ignorance when they say they don't want candied honey; but that does not help the matter. You and I have not a sufficient lease of life to hope to see the day when the masses in our cities will be educated to buy honey in the candied state; and it is the masses in our manufacturing cities who must be depended on to use up the great yields of honey which seem to be increasing every year. What is the remedy then? I think it is the wisest course to recognize the existing prejudice against candied honey, and do the best you can to give them the honey in a shape that they will buy. It seems to me that it would be quite within the province of the bee-journal to experiment, and learn the kinds of honey that will remain the longest in a liquid condition; and the intelligent apiarist would then know that it would be to his advantage to market that which candies quickly in the comb, for we all know that honey, being slightly candied in the comb, will not interfere with its sale. It seems to me that, if no extracted honey were sold that was inferior in quality, or that would candy quickly, it would help the sale of honey wonderfully.

There is an evil in the business which I wish to speak of, and then I am done. It is the putting of two thick pieces of glass and a stout frame, all to hold one little piece of comb honey in its place. When I see a man give value for money, and at the same time prosper, I bid him Godspeed; but when a man owes his prosperity to his sharpness in being able to induce customers to buy two big pieces of glass, with the little piece of honey and all to be weighed as honey, I feel like asking him if he is running his apiary in full accord with the golden rule.

M. H. TWEED.

Allegheny, Pa., July 5, 1886.

Friend T., I have read your article carefully all the way through, to see if you touched on the plan laid down in the A B C book, of sealing up the honey while hot, to prevent candying. I have never had proof that this will not keep it perfectly limpid, providing the honey is sealed up exactly as we seal up fruit. Of course, it must not be heated to the boiling-point, as this will injure the honey. You speak of putting the honey in half-pint glasses, but you don't say whether they were hermetically sealed, and sealed up while hot. I am very well aware that there is a great difference in honey of different kinds. Some will never candy, and I gave up trying to make them candy. Horsemint honey, I believe, has never candied with us; and the pure white-sage honey of California—at least some specimens of it—we have kept year after year, winter and summer, without candying.—Now, I want to protest a little against what you say in your concluding paragraph. Putting up honey in the way you mention, and asking the same prices for it that you do for honey without the glass, might not be exactly the thing; still, if the purchaser wanted it in that way, I do not see why it would not be all right. Friend Doolittle has for years put his honey in glassed sections, and he has a class of customers who will not touch it in any other shape. Whether he still puts it up in this way or not, we can not say. We have had quite a quantity of this kind of honey; and when we first put it on our wagon, a good many took right hold of it, because it could be seen and handled without any danger of daubing. We sell it, glass and all, however, for 12 cts. per lb., while our nicest honey in light Simplicity sections brings 18 cts. per lb. When glassed comb honey brought from 25 to 30 cts., there was a chance to make money in selling it glass and all; but when it brings only 12 cts., I am not sure that the bee-keeper would come out very much ahead, after paying for his glass.

OUR BEES AND NEIGHBORS.

WHAT CAN WE DO TO PRESERVE PEACEFUL RELATIONS BETWEEN THE TWO?

FRIEND ROOT:—Please read the inclosed, and then consider the following: I should like it, or something better, printed in a neat, tasty form for *gratuitous distribution* among my neighbors. I should want only 300 or 400, but if you were to get up something to enlighten and mollify one's neighbors, I think you could sell them by the thousand, thus enabling you to print them cheaply. They might include some plain facts about bees, and a picture of the queen, worker, and drone. The people who are not bee-keepers are *very* ignorant, as a rule, about bees. Something about honey, and how to keep it, might be added. In short, if you think well of the plan, you can add or omit any thing you wish. I only send this as a sample of *about* what I want.

Now that I think of it, an item specially directed to storekeepers or grocers would be in place. They often complain. They leave sugar and molasses open to flies and dirt; and when the bees come around there is trouble. Town authorities sometimes know so little that they prohibit the bees. If you take kindly toward this, and will get up a neat, showy tract, or even one page, and send out a sample with GLEANINGS, I think you will have plenty of orders. One can't go around and tell everybody every thing. If it is printed in a local paper, it is forgotten. Besides, the local presses have not the experience nor facilities for getting out what we want. Please reply to this, telling me what you think of it, and what you will do, and what will be the probable cost per hundred of the "Tract of Useful Information to My Neighbors and Friends." A. CAMERON.

Derry Sta., Pa., July 10, 1886.

Friend Cameron, your suggestion is a most excellent one. I, like yourself, have labored to explain these things, and to set people right in the matter; but they have such erroneous ideas that it is a very difficult task indeed to tell the story all over to each separate individual. The greatest difficulty will be in getting people to read these tracts or circulars. But I think it quite likely that those who have been annoyed by bees will be quite ready to look into the matter, and with interest. Our readers will find the subject-matter of the tract alluded to below:

TO MY FRIENDS AND NEIGHBORS.

This is about bees. Please read it carefully and preserve it. The bees sometimes come into your house and annoy you. Perhaps you get stung, or they fall into your jelly-kettle, or sting the baby. I am very sorry for it all, and send you this little article, hoping to save you trouble hereafter. The bees try to steal only when the flowers are scarce. The worst time is in autumn, just when you want to make fruit butters and jellies; and to be worried by bees when you are tired and warm *is* provoking. Now, this is the way we do at our house, and we never have any trouble, even with the bees right in the yard.

1. Never set any scraps of honey or other sweets about the windows, or anywhere about the house, for the bees to *clean up*. They have good memories, and will prowl about for days, after having had a taste.

2. We never set jellies on the window to cool, unless we have a good wire screen at the windows. Most of the trouble is caused by exposing jelly in this way. The bees find it, and think it is theirs. A bee has no conscience, and will steal without remorse.

3. If a bee comes into your house, drive it out or kill it. Never let it get a load to carry home.

4. If they have gotten into your kitchen and into your jelly, you will have to be extraordinarily cautious for a week or more. Smoke is the best thing to drive them out. But they won't stay out, and you will simply have to shut up the house. But this will never be the case if you will observe the simple precautions above noted.

Permit me to say a word in defense of the bees. They are not an unmitigated nuisance.

1. By having a bee-keeper in your community you are furnished with a pure and wholesome food cheap.

2. Bees are useful, apart from the honey, in fertilizing the flowers of your fruit-trees and garden-vines. Without bees there would be no fruits, and your melon, squash, and cucumber vines would not bear. If you want me to explain this, I shall be happy to do so.

3. It is charged that the bees spoil grapes, pears, etc. They do suck the juice out of all broken fruit; but this would sour anyhow. They can't open the skin of a grape. The birds do the real mischief. I can prove this to your satisfaction, if you will bring a bunch of sound grapes, or any sound fruit, to my bee-yard.

4. People who live in towns must bear and forbear. The pigpen and privy are often nuisances across several lots. They should not be; but you draw a full breath some warm evening—whew! Besides, are you sure that our chickens are not often a mutual trouble, to say nothing of cats, dogs, and such like? And yet we manage, by forbearance, to get along neighborly, as is right.

I am sure that you will not do so wicked and useless a thing as to set out poison for the bees. If you have suffered any material injury, I will try to give you satisfaction. By setting poison for the bees, you not only do a damage to the bee-keeper out of all proportion to the harm his bees have done you, but you may cause the death of some person.

Any further advice or help in any matter relating to the bees, the undersigned will cheerfully furnish.

Derry Sta., Pa. A. CAMERON.

I want to add emphasis to your No. 3. If a bee comes into your house, and begins to sip up something sweet, the very kindest thing you can do to the bee and its owner is to kill it. If he slips away and gets back to the hive with even a small drop of something good, it is like a lighted match to a pile of shavings. It spreads, and very soon there is an uproar. Killing the bee is like blowing out the match before it has lighted any thing else. Some people think it is cruel and hard. A good many things are cruel and hard in this world, if we take a narrow view of them; but when one single insect, by his death, can save the lives of thousands, there should be no hesitation, and no weak, foolish sentimentalism. Kill him for the general good. The great troubles at the candy-stands and lemonade-stands on our fair-grounds can all be averted if the keepers of the stands will keep a paddle and kill every bee as soon as he comes around. I have seen this tried repeatedly.—In regard to the circulars, I think we will try our hand at getting them up. We will start them at 25 cts. per 100. If wanted by mail, 5 cts. extra for postage. I wish that others who are in the printing business may try it also. Let us see who can get up the most attractive tract for the smallest amount of money. A sample of ours mailed free to any one.

WHAT HAS BECOME OF FRIEND McGEE'S BEES?

DOUBLING FOR SWARMS TO PREVENT INCREASE, ETC.

FRIEND ROOT:—I send you herewith some basswood-leaves. You will notice that they are covered with lice, some with and some without wings. You will also notice that the leaves are covered on the upper side with a sticky substance, which was discovered first about the middle of June. The basswoods are covered with it, some more than others. I also find it on the hickory-trees. This is the first of this kind of stuff I have ever seen, and suppose it is the much-talked-of honey-dew.

The question with me now is, What has destroyed my bees? Is it this substance found on the leaves, or is it something else? On the 20th of May I had 24 strong colonies; from that date to the 15th of June all cast heavy swarms, and were hived as follows: 2d swarm where 1st had issued from; 3d where 2d had issued from, and so on, so that, by the 15th of June, I had gained but one colony. Of course, no after-swarming was allowed. You can imagine the strength of the colonies on the 15th of June. They were powerful. Up to that date they had done great work on fruit-bloom and white clover. Basswood opened about July 4th, and some trees are still in bloom; there is also an abundance of sweet clover, white clover, motherwort, and catnip, all of which the bees are working on. During the past week I expected a great deal of swarming and an immense crop of honey; but as something seemed to be wrong I went through all the colonies and found very few bees in the upper stories, and the brood-combs only nicely covered. They all looked as though they had cast a swarm the day before. The queens are the best, most of them hatched in 1885 and '86; their combs are filled with healthy brood, no dead bees in the hives, or on the ground in the apiary. Every thing seems to be all right except the absence of the field-bees. The new honey is of good color and quality; the capping is a shade darker than usual. Part of the colonies are working for comb and part for extracted; all are affected alike. What the outcome will be I can not predict, but I will report later. I can not believe that anybody is poisoning them, as I don't know that I have an enemy in the world.

I have sent Prof. Cook some of the basswood-leaves. GEO. H. MCGEE.

Point Marblehead, Ottawa Co., O., July 13, 1886.

Friend M., I hardly think the honey-dew on the basswood-leaves has any thing to do with the missing bees. It may be hard to tell what has become of them; but is it not possible they worked themselves out, wore out their wings, and perished? There is so much water around you that a ragged-winged bee would be more apt to perish sooner than he would be in a different locality.—Is this the first season you have tried to return swarms in this way, or have you practiced it before? The effect is, you have a great quantity of bees in each hive pretty nearly all of an age; and when they have lived their allotted number of days during the working season, they are gone almost at once. One fall I brought in a great quantity of bees from a neighbor, to save them from being brimstoned. I divided them around in my hives, so as to make them tremendously strong, and fed them to get them ready for winter. They used a great amount of sugar; but when the winter came, my hives that had been overrunning with bees looked about as you describe yours. The bees I brought home were late swarms; and as they had nothing to gather they were of no use, there being plenty in the hive already to take care of all the brood the queen could produce; so when they died of old age I had received almost no benefit from them whatever. In your case I should have supposed the swarms would have given you an immense crop of honey before they wore themselves out; but you don't say a word about the amount of honey you received.—The sticky substance on the basswood leaves seems to be the ordinary secretion of the aphides, only it does not seem to be very sweet. Prof. Cook replies to friend McGee in the next article.

PLANT NECTAR.

Some Additional Thoughts from Prof. Cook.

IS IT PROBABLE THAT IT MAY KILL BEES IN WARM WEATHER?

THE leaves sent by Mr. McGee are thickly gummed with a nectar of very doubtful character, if I may judge from the taste. It is as thick as syrup in cold weather; is very abundant, and quite nauseating to the taste. Upon the leaves I find abundant cast skins of spiders, though no living lice. There can be no doubt but that the nectar is an excretion from the lice. Lice have been very common this year, doubtless owing to the severe and long-continued drought, and have been pretty well studied here by myself and students.

Upon close examination we find that these plant-lice not only emit drops of nectar from the nectaries, the long tubes on their backs, but also that they pass a somewhat similar nectar from the alimentary canal through the anus. The nectar from both sources is seen to be quickly appropriated, and seemingly relished by the many ants that are lured by it to the same plants that are sacrificing their sap and life to these myriad lice.

Until last year I had thought that nectar from aphides (plant-lice) was always wholesome, and of good flavor, while that from scale, or bark lice, we all knew to be bitter, and even nauseating. Last season the blackberry bushes of Northern Michigan were crowded with plant lice that furnished much nectar in the late autumn, which was eagerly gathered and stored by the bees. This nectar, though not so unpleasant as that from bark-lice, was not fit to eat. Some that I received early was not very bad, doubtless owing to the liberal admixture of honey from flowers. I thought this not very bad, and said I should not fear to use it for winter food for my bees. Later I got some probably nearly or quite pure that was decidedly unwholesome, and I said it was unfit either for table or bees. It is thought that many bees died from the use of this food last winter.

The nectar on the leaves sent by Mr. McGee reminds me much of that from the blackberry shrubs, and I should hesitate to use it for winter food for the bees. That it is killing off the bees at this time, when they are on the wing every day, and can freely void their feces, I much doubt. I should hardly accept it as a cause until I had proved by thorough investigation that no other cause was present, and, by experiment, by feeding a few bees in a cage, on this nectar, that it was toxic, or a poison to the bees.

I have seen—yea, and tasted—of honey derived from plant-lice, notably from larch-tree lice, and from lice from evergreens, that was excellent in color and flavor. May it not be possible that the nectar from the nectaries and skin of lice is wholesome, while that from the anus is bitter and noxious, and that the presence or absence of this latter makes the difference? I think the best test in the matter is our own taste. *Never give* the *bees* *honey for winter that we would not use on our own tables.* A. J. Cook.

Agricultural College, Mich., July 16, 1886.

BEE-KEEPING IN CUBA.

A DESCRIPTION OF ONE OF THE LARGEST APIARIES IN THE WORLD.

THE honey-bee was introduced into Cuba from Spain at a very early period of its history; and being a land of perpetual flowers, with no winter to impede their labor, they soon spread to all parts of the island, and bee-keeping has long since become one of the established industries. There is probably no other country of equal extent on the globe, which has furnished an equal amount of honey and beeswax. The latter has, for more than two centuries, illuminated the churches of both this island and the mother country, besides furnishing the supply needed for other purposes, while the former has found a remunerative market in all civilized countries, chiefly in Germany, England, France, and the United States.

A Cuban bee-hive is very simple, consisting merely of a hollow palm log, or oblong wooden box, 10 to 15 inches in diameter, and 5 to 6 feet in length, open at both ends. These hives are arranged in a horizontal position, three or four feet high, supported on a framework of long bamboo poles resting on posts driven into the ground. When these hives are full of honey, the Cuban bee-keeper, after thoroughly smoking the bees, thrusts, into one end of the hive, a long sword-shaped knife and cuts the combs loose from the inside walls. He then inserts a long iron rod, flattened at the end, and bent in the form of a right angle, clear into the brood-nest (which generally occupies about 15 inches in length of the center of the hive), cuts the combs, and pulls them out one by one. He then performs the same operation on the other end of the hive, and so continues until the whole apiary is gone over. The combs are now submitted to pressure, and the wax separated from the honey. Of course, the honey so obtained is not very pure, being mixed with pollen, propolis, dead bees, and the juices of larvæ, all of which tends to cause fermentation; Cuban honey (than which, when pure, there is no finer in the world) has gained an unenviable reputation. Native apiaries, of from 50 to 300 or 400 hives, are frequent, and sometimes as many as 2000 are kept in a single yard. The season for surplus honey extends from October to April, the height of the flow being from the middle of December to the middle of February; but there is almost always a sufficiency for breeding purposes, and hence the Cuban bee-keeper never resorts to feeding. He "robs" his hives only once or twice during the year, and seems satisfied with an average production of 75 to 100 lbs. of honey, and 4 or 5 lbs. of beeswax per hive.

Nearly three years ago the writer introduced, for the Messrs. J. N. & P. Casanova, 100 stocks of Italians in movable-frame hives, together with all the modern appliances necessary to insure success. They were located about 18 miles S. E. of Havana, 8 miles from the ocean, and, we believe, constitutes the first apiary on modern principles ever seen in the island of Cuba; and to the gentlemen referred to belongs the credit of this great change in the systems of bee-keeping, from which promising results will undoubtedly be realized by many of their brethren in the near future.

MODERN BEE-KEEPING VERSUS THE OLD WAY.

The year following the introduction of these bees, 113 of them gave, in a period of 4 months, 43,000 lbs. of choice honey, being over 380 lbs. per hive, or more than four times the amount produced on the old plan. The success of this experiment far exceeded the most sanguine expectations of the Casanova brothers, and, being gentlemen of means, they at once set about and completed one of the best-appointed modern apiaries to be found in any country; and for the benefit of the readers of Gleanings, we will briefly describe it.

The apiary and buildings cover nearly three acres of ground, in the form of a rectangle, sloping to the southeast with a descent of 10 feet in a hundred. Near the center of this plot are two sheds, each 200 feet long, extending across the plot in parallel lines, east to west, and about 30 feet apart. Opening out from the northernmost of these sheds are 6 others, extending to the north line of the plot in parallel lines 25 feet apart. At the center of the south one of the two first mentioned is another shed extending to the south 60 feet to the extracting-room. These sheds are all 9 ft. wide, 6 ft. high at the eaves, peaked palm-leaf roof about a foot thick. They are high and airy, affording perfect protection from sun and rain, and are always comfortable, even in the hottest weather. Along both sides of the sheds, just inside of the eave-lines, are the long rows of two-story hives, painted white, 5 feet apart, and, of course, facing outward, so that the flight of the bees in no way interferes with the workmen. The ground, all sloping toward the honey-house, makes the wheeling-in of the loads of well-filled combs comparatively easy. The extractor is a 6-frame reversible, made by Aspinwall & Treadwell, of heavy galvanized iron, and delivers the honey through a large pipe on top of the center of a broad screen, covering the top of an evaporating-tank holding 8000 lbs., where the honey is freed from any little pieces of comb, etc., which may have got in by accident. From the concave bottom of this tank an iron pipe extends down the sloping ground 60 ft. further, to a broad covered shed where the honey is received directly into the bungholes of the tierces by merely turning the large faucet on the end of the pipe. Along the lower side of this barreling shed, and coming close up to it, is the roadway, which is enough lower than the floor of the shed to admit of the rolling of the filled tierces into the carts ready for transportation to the depot.

It will thus be seen that, from first to last, there is no dipping or lifting of honey required. We might go on to describe the uncapping arrangement, with their screen bottoms and troughs leading to the evaporating-tank, and many other useful appliances of the large airy extracting-room; but our "story" is already drawn out beyond the space we supposed necessary to tell it; so we will close by saying that every thing is built substantial, ample, and yet simple, and contrasts strongly with some of the little "cluttered up" arrangements too often seen in our own country. A. J. King.

N. Y. City, N. Y., July, 1886.

Thanks, friend King, for your very valuable communication, especially your description of the Casanova apiary. Now, if it is a possible thing we want a photograph of this apiary, to show the arrangement of the hives, sheds, etc. If it can be accomplished, never mind the expense, but let us have a glimpse of this great Cuban apiary. I read your communication all through with a very strong curiosity to know where so much honey is disposed of; and now if it is second to none in the world, can't we have a sample barrel of it? In our price list we advertise clover and linden honey, and also California honey; why not let us say Cuban honey also?

THE PRODUCTION OF WAX.

How Many Pounds of Honey Does it Cost the Bee-Keeper for Every Pound of Wax Made by the Bees?

SOME VALUABLE SUGGESTIONS IN REGARD TO THE MATTER, FROM FRIEND HASTY.

FRIEND ERNEST:—Concerning yours of the 25th ult., about my experiments to find how many pounds of honey make a pound of wax, there certainly were such published in GLEANINGS, but you fail to find them; and with a hurried search I fail to find them also. Since writing that article I have made more careful experiments, which I intended to write up and lay before our bee-keeping friends, but have never found time to do so.

I regard the doctrine, that a pound of wax equals 20 pounds of honey, as a monstrous and mischievous error, with no foundation to stand on but the carelessness of observers and the sullenness of bees when subjected to unnatural conditions. In planning matters in my own apiary I consider a pound of wax as the equivalent of about three pounds of honey. I also heartily agree with the idea, first advanced, I think, by Mr. Doolittle, that much of the comb actually built in an apiary is built at no cost at all in honey. Just as the blood of an animal supplies material for the growth of what hair he needs, and little or nothing would be gained by obviating it, so the blood of the bee probably supports the growth of a moderate number of wax-scales without causing any special demand for food.

It just occurs to me to venture the remark, that it is the white wax that costs, and the yellow that we get free. When the bee eats honey and makes a business of digesting it into wax, the scales are white; but when he furnishes a few scales, while consuming pollen freely, the scales are yellow.

E. E. HASTY.

Richards, Lucas Co., Ohio, July 14, 1886.

Friend H., considering the suggestions at the close of the above, that perhaps a moderate number of wax scales do not cost the bee-keeper any honey at all, may be you are right in suggesting that a pound of wax does not cost more than three pounds of honey; then it would follow from this, that, if liquid honey is worth only 7 cts. per lb., a bee-keeper could produce beeswax, at least in moderate quantities, for 21 cts. per lb. Now, then, where is the bee-keeper who has ever done this, or who can do it, or will do it? We will pay liberally for reports of experiments in this line. And, friend Hasty, I wish you would take time and write up the article you allude to as above. It is indeed a matter of great moment, not only in our country, but especially in tropical lands, far away from civilization, where honey is worth next to nothing.

THOSE BOXES FOR FORMING NUCLEI.

FRIEND DOOLITTLE EXPLAINS.

SEEING Ernest's article on page 550, regarding how he formed a colony by using one of the boxes I have described for forming nuclei, leads me to give the readers of GLEANINGS some of the uses I have put these boxes to, and to explain some points which I see Ernest and perhaps some others fail to understand. I see Ernest thought it necessary to get his bees from several different colonies, while I get them from but one, only in case of uniting nuclei in the fall or in making very large colonies. The getting of the bees from only one colony does away with much of the labor, for only one queen has to be hunted, and only one hive opened.

Well, since I wrote regarding the plan before, I have found out another "kink" which makes this the simplest plan of forming nuclei known, and involving as little labor. Well, the "kink" is this: I get the bees from the upper story of a two-story hive, having perforated zinc between the hives. Here I know there can be no queens; and to tell the reader how easy it is done, I will go over the ground a little the second time.

Between the hours of 10 and 11 o'clock A. M. I take my box and funnel, and go to one of these two-story hives, open it, take out as many frames as I want bees (which is generally not more than two), and jar them a little so as to cause the bees to fill themselves with honey, waiting a moment or two for them to do so, unless I am to make more than one. If more than one is to be made I pass on to another hive and get out two frames from that, when I go back and shake the bees down through the funnel into the box, and close the hive. In times when honey is coming in plentifully from the field it is not necessary to wait for the bees to fill themselves, for they are already pretty full of honey. The box is now taken into the shop, and a cloth thrown over it. Any room or shady place I find just as good as a dark cellar, which I at first recommended; and I often set an empty hive or hive-cover over it and leave it right in the apiary so as to save all extra travel.

In less than one hour these bees will almost "cry" for a queen of some kind; but as they will sometimes cluster one if given too soon, especially where virgin queens are used, I wait till about two o'clock, when they will fairly beg. I now get as many virgin queens, from four to eight days old, as I have boxes of bees, and put in with the bees. I do not "jumble" them up at all, as I used to, for I find it is unnecessary. All I do in putting the queen in is to set the box down suddenly, so the bees all go to the bottom, and do this only to get the bees out of the way, while I put in the queen. The box is now left till near sunset, when the bees are all clustered in the shape of a swarm. They are now hived in a hive containing a frame of brood and one of honey. To hive them I have the frames of brood and honey set on one side of the hive, together with a division-board, when, with a quick jar, I dislodge all the bees from the box on to the bottom of the hive near the opposite side. I now quickly slide the combs and division-board across the rabbets to this side of the hive when the bees are immediately on them. In three or four days more this young queen is fertilized and laying, and we have a nucleus ready for sending off queens at once with less time and labor involved than would take to get a laying queen in any other way. In fact, I think so much of the plan that $100 would not tempt me to drop it and go back to any of the old plans—not for a single year. Then there is one other thing I especially value it for, which is, the safe introduction of a valuable queen arriving from a long journey. There is no longer any need of fears of safely introducing the most valuable queen, for I know that not one queen in a thousand will be lost if the above directions are followed. In this case I take bees enough to make a fair colony, and use more frames of brood, so that a strong artificial colony is formed at once. It is handy and good to know that you are ready to introduce a queen safely within three hours after she arrives, no matter if you do not know when she is to come.

Well, I was going to tell you more; but this article is already long enough. I don't like long articles, so I try to do as I would be done by. Give us short articles, but to the point, for interesting reading, friend Root. G. M. DOOLITTLE.

Borodino, N. Y., July, 1886.

I was aware at the time, and so stated, I believe, that I was not practicing artificial swarming exactly as prescribed by you; but my intention was to put it severely to the test by taking bees from *six* different colonies instead of from one or two. In other words, I was ambitious to make your plan do *more* than you claimed for it, and so met with the partial failure as recorded in the apiary report of last issue. Perhaps you do not claim that the plan will make *all* the old ragged-winged bees stay in their new location; at any rate, I succeeded in making a few of these old fellows stay, when I failed entirely by the ordinary plan. I see you do not recommend putting the queen among the bees immediately, but wait till they fairly "beg" for a queen—good, bad, or indifferent. I suppose you tell when the bees get into this "home-sick" or "queen-sick" state, by the hum of distress which will be noted in queenless colonies. Then you drop in the queen.—We will all join hands with you in calling for short articles. When a great number speak briefly, and to the point, it always adds life and variety to a journal as well as to prayer-meetings.

COMB OR EXTRACTED HONEY.

RETURNING SWARMS.

ON page 537, July 1 GLEANINGS, Mr. M. H. Tweed makes a suggestion in regard to disposing of comb honey that would not sell if extracted. The suggestion he makes is all well enough, if the sale of honey alone is the object we desire to attain; but will it pay in the long run to offer for sale, in the comb, honey that would not sell if extracted? In view of the fact that the purity of honey (comb honey too) is already questioned, would it not be better for us to endeavor to show the public that our honey is of undoubted purity, rather than to attempt to dispose of the cheaper grades by securing it in combs? As yet the public are not educated up to the point of knowing that dark honey is equally pure as the lighter grades; and the suspicions that are already aroused will be found difficult to allay, even if we offer nothing for sale as such, except the very best we can raise. Let us all, then, strive to offer nothing but the best as such, rather than to dispose of the poorer, by what the uninitiated might call questionable ways.

On page 533, same issue, Mr. C. H. Wood suggests a good plan for returning swarms "when but little increase in the number of colonies is desired." I presume this suggestion and description is intended to cover those accidental cases that will at times occur, no matter what care is taken to prevent; but as there is a question as to whether simply it is so meant, or that his plan should be a general rule, I would suggest that all the trouble, bother, and care attendant upon so returning swarms, and watching to know the hive they issued from, can be avoided by using a queen and drone trap. In case it is not known from which hive a colony issued, dust a few of the bees with flour, then carry them a short distance from the spot they alighted upon, and throw them in the air; they will at once return to the parent colony, and their white jackets can not be mistaken, when, without such precaution, it might be impossible to the parent hive.

Foxboro, Mass., July, 1886. J. E. POND, JR.

Friend P., I am sure that our good friend Mr. Tweed had no thought of palming off poor or inferior honey, but, rather, something like this: We all have two or more qualities of honey, and the color is not always an indication of the quality for table use. Now, dark honey does not sell well in the liquid state, even though the flavor be first class; hence, may not this same honey of excellent quality but of poor color be more profitable if put into the combs, and sold as comb honey?

FOUL BROOD NOT CURED BY SALICYLIC ACID.

EXTERMINATED BY MELTING COMBS AND BOILING FRAMES AND HIVES.

I BEGAN bee-keeping about four years ago. I succeeded very well until I had about 12 colonies, when I lost all but two with foul brood. I think there could be no mistake about its being foul brood, as the caps of the brood-cells sunk in, becoming concave, with a little pin-hole in the center, and little or none of the brood hatching out. The cells when opened contained a brown semi-liquid substance, about the color of roasted coffee, and had a very offensive smell. I tried spraying the comb with salicylic acid and borax, as directed on page 93 of the A B C; but the only effect it seemed to have was to kill the mature bees. In an hour or so after spraying you could see hundreds of them hopping about on the grass in front of the hives. I thought at first perhaps the drugs were impure, and bought at another place, but with the same result. I was then making preparations to move from Clay Center to this place, which is 15 miles, at least, from any other bee-keeper, so I made two new hives, put what remaining bees I had into them, and sent them here. I melted all my combs into wax, and exchanged for foundation. I boiled all my frames, hives, bottom-boards, and covers, and am using them now.

From the two hives, in two years I have increased to ten. We get little surplus honey in this neighborhood until the latter part of August; very little, if any, white clover is grown here. I got about 200 lbs. of extracted honey per hive last fall, mostly from goldenrod, I think. Bees have to be fed in May. I tried a rather odd experiment in feeding this spring, which I will give you for what it is worth. As farmers will, sometimes, I got very short of sugar, and did not have time to go to town after more; but the bees must be fed. So I reasoned, that, as new milk is good for man and beast, why not for bees? I fed the colonies that were in the greatest need about a teacupful each, daily, for nearly a week, of new milk, made quite sweet with about a tablespoonful of sugar. The bees drank it eagerly, and cleaned the platter before it had time to sour. But although I looked the frames over several times, I could see nothing like milk in the cells. What did they do with it?

M. H. Panton.

Oak Hill, Clay Co., Kan., June 26, 1886.

Friend P., your suggestion about feeding the bees milk is a valuable one; and since you mention it, I recall that this same subject was talked of a good many years ago, and it was then thought that milk assisted very materially in brood-rearing, at times when little or no pollen was to be had. I think it quite likely, that where bees are in a starving condition, or pretty near it, during a dearth of honey in the summer months, milk might often in many homes be the cheapest food that could be given them until honey came again; and I am inclined to think they can be easily taught to take new milk, right from the cows, without any sweetening at all. Have any of our readers ever tried it?

HAVING STUDENTS IN APICULTURE.

MRS. CHADDOCK'S EXPERIENCE WITH 'EM.

THIS summer I am having a student to learn bee-keeping. I never advertised for students, and I do not want them. I have no time for it. So when this young woman came to me to learn bee-keeping I tried to put her off, but she persisted. I gave her a copy of Gleanings, the *A. B. J.*, and *C. B. J.* to read, and went to sleep. When I awoke, three hours later, she said, "I can't make head nor tail of this stuff. It's all Heddon and Doolittle, reversible hives, queens, broodings, and lawsuits."

"Oh! well," said I, "keep on; and when you have read these papers for fifteen years you will begin to see the point."

"But," said she, "I want to know how to do to get lots of honey; I want to make money."

"And," said I, "that is just what Heddon and Doolittle are all the time writing about."

"Well," said she, "I think I had better begin *somewhere*. This looks as if we were taking the fish in the middle and swallowing both ends at once. Isn't there any beginning to bee-keeping?"

"Yes," I answered, "there's plenty of beginning; there's Root's A B C," and I turned over and went to sleep again. Next morning she followed me out among the bees; and after looking round awhile she asked which were the Simplicity hives. I told her and she put it down in a note-book. I told her that note-books were no good; but that if she wanted to help she had better get on a bee-hat, and help me carry away a few old colonies that needed moving. She came back presently, hatted and gloved, and with sleeves tied down. We picked up a Simplicity hive, bottom-board and all, and started; but just then a bee stung her on the ankle; she screamed, and said she must set the hive down; she would let it fall, she knew she would; but I said, "If you let it fall I'll ——," and she held on till we had it in the right place. Her ankle and foot swelled up tight, so that she could not walk any for three days. I told her she could quit the student business at any time, but that, if she pretended to help, she *must* help, and not weaken when the tug of war came.

I am selling comb honey at 10 cts. a pound, where a man takes a whole box, or 12½ for a few pounds. Good honey is selling in the same market for *seven cents*. It is *just as good* honey as mine, but it is in the old-fashioned honey-boxes, each one weighing from 15 to 20 lbs. I have three towns to sell in, besides the country folks. If I take honey anywhere, and the man who is selling it has half a box on hand, I do not leave it but haul it home again; and when he is *just out* I take it back again. The best plan is not to take it till they ask for more. People will buy honey when it is nearly gone, who won't buy out of a full box. If there seems to be plenty, they say, "Oh, yes! I'll get some one of these days;" but if it is nearly gone, they are afraid that it will be all gone soon, so they buy it then. I think people often kill their own market by piling too much honey on it at once.

Mahala B. Chaddock.

Vermont, Ill., July, 1886.

Why, Mrs. C., how in the world did you get to go into the "student" business? It is not long since you were going to hire out to drive a mule team. I suppose the young lady is still studying—at least, you don't say she went home and gave it up. Why didn't you start a wagon, such as we pictured last month? You could have the mule team to draw it around; and when you get a whole class of students, you could have them do all the work while you simply superintend. If you sell the honey at such low prices, however, of course your students would have to work for nothing, and board themselves; or, still worse, pay you something for teaching them so patiently.

HONEY-DEW.

HOW TO GET IT OUT OF HONEY-BOXES.

WE have had an excellent season for bees to build up on. White clover was more abundant than at any previous season—so much so we procured a little surplus from it; but before I was aware, my bees were storing honey-dew in the sections that had been nearly filled from white clover. Of course, I wanted that out, and tried an experiment which proved successful in my case, but would probably be too laborious for one who has a large apiary, and wants no more increase, and who has a large amount of this honey stored in sections.

I first extracted all the honey from a set of frames containing unsealed brood, and placed them in an empty hive. I then took a strong colony of bees, and, after securing the queen, shook all the bees (except a few) in the hive I had prepared, and released the queen in the old hive. I then removed the new hive some distance and let it remain over night. The next day the workers nearly all returned to the parent hive, leaving a fair colony of bees with but few workers and a hive full of brood, with nothing to feed it. Now is the time to give them a queen and put on the boxes containing the honey-dew. The young bees carried it down, as I expected they would, to feed the brood and store it in the combs below. The object of leaving the queen with the parent colony is, that worker-bees will have less inducement to remain with the new colony. Of course, they will empty the boxes, and we lose what white-clover honey had been deposited in them.

The honey-dew honey is not so dark, nor does it have such a strong, sharp, unpleasant taste as in the year 1884, when it was so remarkably abundant. It will be remembered, that the winter following there was great mortality among bees, which some accounted for by feeding this dark honey for winter stores. Whether it is a secretion from a different insect from that of 1884, I am not able to say; but I incline to the opinion it is the same insect, and that bees worked on white clover at the same time they were gathering it, which causes a mixture of the two varieties, and accounts for its not being so dark as it was in that year. If this was the cause of the great mortality of the winter of 1884-'85, bee-keepers may expect the same result the coming winter, unless some precautions are taken in excluding it from winter stores. But as I then wintered one colony successfully on that secretion alone, I feel like trying some more the coming winter.

Bees are now working on a species of smartweed which usually begins to bloom about the 2d or 3d of July, but which bloomed this season about ten days earlier. GEO. WISEHEART.

Iola, Ills., July 12, 1886.

Friend W., your plan of getting honey-dew out of the sections is quite ingenious indeed. It seems too bad to lose the white honey also where a great portion of it is light. Would it not be possible, by keeping careful watch of the bees while they are bringing it in, to get them to take out the honey-dew before it is sealed up, without disturbing the capped honey?

FRIEND TERRY TALKS TO US ABOUT HOME INFLUENCES.

ALSO A HINT TO THE WOMEN-FOLKS IN REGARD TO SPRINKLING CLOTHES FOR IRONING-DAY.

FRIEND ROOT:—I have been thinking for some days, while at work, about an idea thrown out by you in GLEANINGS for June 1, about little things shaping the future lives of our boys and girls. I am perfectly sure that they do. The simplest thing, done in a neat and tidy manner, before the children, will have its effect on their future lives, and it will be the same also if there is no attempt at order or neatness. A crooked stovepipe is an educator to the little ones as surely as the schoolteacher, or a door that won't shut, or a gate off the hinges, or a shiftless-looking dooryard; all such matters will leave an impress on the children's minds that will make it seem natural for them to have similar surroundings when they grow up. We parents ought to think of this. When I was a small boy I thought, boylike, that father was over-particular about many things. I used to say to him, "Father, what is the use of spending so much time to get those potato-rows so straight (in the garden)?" Or, "What is the use of doing so much work in that dooryard?" You see, I was a boy then, and thought more of play; but father was looking ahead, and brought me up surrounded by such an atmosphere that I am necessarily as particular, if not more so, than he was; and many a time have I felt thankful for it.

When I see every thing at loose ends around a farmer's home, I can not help but think the chances are nearly all in favor of the children being just like him. If there is a nice lawn, and walks and flowers, and neatly painted buildings, and pretty trees, and every thing looks neat and tasty, I can tell almost to a certainty how things will look around the children's homes when they get some of their own, the surroundings of childhood have so much to do with the future grown person. A shiftless man whom I once knew, was being reproved for his conduct by a friend, when he broke out in defense with: "You know my father and my Uncle James and my Uncle Henry, don't you?"

"Yes."

"Well, then, what more could you expect of me?"

To be honest, one had no business to expect any thing very much better of him. Now, I want to say to every reader of GLEANINGS, Think twice before you say "no" when the good wife wants you to fix things up a little—to mow the dooryard, to get her some flowers to make home beautiful. I know a man who is worth $50,000 at least, who grumbled about it because his wife wanted him to get her a few flowers at 6 cents apiece. Ah! money is the only thing worth living for, in his eyes.

You may say that the love of the beautiful and of order and neatness are not so important as good moral training. Perhaps not; but the former will strengthen the latter. They are sorts of sugar-coated pills that will do good without being hard to take. At any rate, the children can not refer to your failings in future years, and say, "What more could you expect of me?"

Now, friend Root, I want to tell you about something that I found going on in my dooryard the other day. You may remember we got some wire clothes-line and a Whitman's fountain pump of you, among other things, last spring. Well, I found one of my daughters sprinkling the clothes, on the line, with the pump, after which they were rolled up and put in the basket ready for ironing. It was quite a saving in time over the old way; and with a little care it can be done very nicely. This is a use for the pump that I do not believe you ever thought of. To be sure, it is a little matter; but I am glad always to do what I can to make the work of the ladies, necessarily quite too monotonous, as pleasant and easy as possible. In my next letter I want to talk to the husbands and fathers a little about some improvements indoors. T. B. TERRY.

Hudson, Ohio, July, 1886.

Thanks, friend Terry. Your idea is certainly novel, in regard to sprinkling clothes, and I am going to have my wife make a test of it at once. The cheap Smith pump, which costs only a dollar, will no doubt answer just as well for this purpose as the Whitman, and it will throw the water in such a fine spray it seems to me it must answer the purpose excellently.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

CALIFORNIA NOT SO BAD AFTER ALL.

I THINK that Mr. F. J. Farr's article on California, page 489 of GLEANINGS, is a little overdrawn. I will admit, that there are many places in the southern part of the State where one could travel 22 miles, or even more, without coming to a house; but he should remember that this is a big State, and comparatively young.

The Harbison section, of which Mr. Farr speaks, is fast going out of use, and the one-pound section is used instead. There is no lumber in California that is nice for sections, so we are obliged to import them from the East, which makes them cost a little more than they do where made.

A good workman can always find plenty to do, and at good wages. I can always find employment at work in orchards at $2.00 a day. W. W. BLISS.

Duarte, Cal., July, 1886.

DO BEES FROM THE SAME QUEEN CHANGE COLOR?

Whether the subjoined facts in regard to bees changing their color is any thing of interest to you, or whether it has been observed by others, I do not know, since I have not seen it in print. I have several hives of Italian bees which I raised artificially. They were, during last summer, of the right color—bright, not a hybrid or black one to be seen among them. Later, in the fall, one day on opening them I found several frames full of bees of a different color. I was somewhat disappointed. First, I thought a stray swarm must have found its way to the hives, or the queen might have died, or that the swarms raised a new queen, which met with an impure drone. I have had it all winter and spring on my mind, what caused the sudden appearance of (to my eyes) a different bee than what I had raised last summer, not only in one hive, but several. These very same hives don't show now any other bees than Italian, nor do the new swarms show any other strain. But this I found out, that the young bees not only look downy, but black; the three bars are hardly perceptible at first, but enlarge as they grow older, so that this summer, to the eye of a stranger, it looks as if I had hybrids, blacks, and Italians, all mixed up. Later in the summer, especially on some plants, bees as well as other insects will change color, even if only temporarily. I instance the aphides, or lice on fruit-trees, roses, etc.

Sandusky, O., June 21, 1886. F. J. M. OTTO.

Friend O., I have often remarked that bees which I had in the spring and summer been calling my best and finest Italians, during a dearth of honey in the fall were almost invariably small and dark.

BLACKS VS. ITALIANS AND HYBRIDS; WHAT IS THE BEST BEE?

I have been asked this question so many times, and have asked the same question so many times with such diversified opinions, that I have long ago ceased to answer or ask. I am more in love with the hybrid (Italians and blacks) than any others; my second choice is pure Italians; third choice, any thing but clear blacks. One-fourth of a mile from me is an apiary of 100 colonies. The owners would prefer clear blacks, designating my bees, which are mostly Italians and hybrids, as nothing better than "horse-flies." Now, if blacks are best I want to keep blacks; and if Italians are best, I want them; but really, from my experience I prefer hybrids. I have handled bees for the past 20 years, but upon improved principles for only the past five years, and I have never as yet had occasion to complain of the vindictiveness of the hybrids. As honey-gatherers they *Excel* (with a big E). While my blacks were idle during a recent drought, Italians and hybrids were continually storing a little honey.

I report a poor honey-yield in this section, on account of drought. I have 85 colonies—50 hybrids and Italians. F. H. CHAPIN.

Hinsdale, N. Y., July 6, 1886.

BITTER HONEY.

I should like to have you tell me what the sample of honey sent is gathered from. Not being accustomed to it I can not tell. It is mixed in some four or five hundred sections. Some of it is so bitter we can not eat it. Will it improve by age?

WM. L. WARNER.

Charlemont, Franklin Co., Mass., July 14, 1886.

I can not give you any conjecture as to the source, for I have never tasted any thing like it before. So far as I am concerned, however, I should not object to it for my own eating, for to me the bitter taste is rather pleasant than otherwise. I might, however, get tired of it after having too much. I will explain to our readers that the peculiar taste is a little like cinnamon—say the thick barky cinnamon that is sometimes slightly bitter. Where honey is unsealed, and remaining in the hive, no doubt this taste would disappear to a great extent by letting it get thoroughly ripened. If it is in sections, however, that have been removed from the hive, I should not expect much improvement.

HONEY-DEW.

My peach-tree leaves yield honey every year. At the base of the leaf are three little tubes on each side. There is where they get the honey. There are persimmon-sprouts all over my place, and there is a kind of louse which wraps itself in the leaves—that is, folds them together. A great many are in each leaf. They produce honey three or four months. Shake a leaf in your hand, and out roll the little shot-like balls, from the size of a pin-point to the size of a duck-shot. I have just been out and got some leaves—a persimmon and a cottonwood. The bulged-out place on the cottonwood is where the honey was. I saw as much as a teaspoonful in one. This spring they lasted but two or three weeks. In 1880 I saw a pine-tree just covered with honey one morning: if you had shaken it you would have received a shower-bath of honey. It was dropping off on the grass, and even the ground was wet with honey. The bugs that produced it were about the size of a pea—oval-oblong, with a crease down the back. I could not make them show any sign of life. They were stationary—no legs, no mouth. They were attached to the limb with a heart-like contrivance, Take the body of a tick, and you have something similar; break one, and you see a mass of matter. They were tucked in among the straw on the limbs—thousands of them. The tree was about 30 feet high; the branches, at the base, were spread about 12 or 15 feet in diameter, and tapered off gradually to the top. R. R. WILLIAMS.

Edwards, Hinds Co., Miss.

STARTING A HONEY-WAGON.

I come again to ask your advice upon a question which I wish you would give your *personal* attention for a moment; i. e., the advisability of starting a honey-wagon on the road. A great many farmers bring honey to market and take 10 or 12½ cts. per pound in unsightly sections; and when I offer my white clover and basswood honey (sections cleaned and honey white) for 15 or 16 cts. I am told they can buy honey cheaper. I thought, a wagon kept on the road in town and country could sell my own honey; and if parties are willing to sell *so cheap*, buy theirs and sell it out some way. I do not feel like devoting my entire time to the business, and have the market price controlled by a few bee-keepers who make no calculations on honey sales; and their willingness to take almost any thing, *must* cripple the sale of honey put up in better shape.

Nevada, O., July 20, 1886. WM. M. YOUNG.

Running a honey-wagon is quite an expense, it is true; but I think in many respects it will pay well, for the very reasons you mention. Always have at least two, or, still better, three grades of honey on your wagon. We get 18 cts. a pound for our very finest comb honey; but we have side by side of it cheaper grades for 12 and 15 cts.; but the cheaper grades remain almost unsold while we have the real "gilt edge" in stock. When that is gone (and, of course, it is always the first to be gone) then we have to fall back on the other. Your wagon might make the round, say twice a week, or even once a week; and I think it would pay you well to keep track of the honey-producers, and take their product off their hands at what it is worth. If they see you getting 18 cts. per lb. while they get only 10 and 12 cts., it will very soon have the effect of inducing them to take more pains.

HONEY-DEW, AND WHAT SHALL WE DO WITH IT WHEN IT IS GETTING IN THE SECTIONS?

I am an A B C pupil. My bees are putting honey-dew in the sections, which have been partly filled with clover, and are spoiling the whole lot. Shall I take the sections off and put them back when the fall honey-flow commences? Would they not be more apt to swarm if the sections were removed?

Conneaut, O., July 19, 1886. H. A. CUMMINS.

Friend C., it is a little hard to say what is best in such a case. Your sections are probably part full of white honey. The honey-dew will ruin the sale of it, unless somebody has a mind to take it at a low price and get out the honey-dew spots. They can see these by holding them up to the light as we have before explained. If you let them get filled up with fall honey, this will also injure the sale of them; but of course it will not be as bad as honey-dew. The bees would certainly be more liable to swarm if you take the sections off; but perhaps you might put on some empty combs, and then throw out the honey-dew with the extractor, saving it to feed next season, or at any time so it will not get into the winter stores.

SOLAR WAX-EXTRACTOR TO BE TRIED AT THE MICHIGAN AGRICULTURAL COLLEGE.

Prof. Cook ordered a solar wax-extractor of us, and we sent him the original one sent us by friend Green. In regard to it he replies as follows:

Allow me to thank you, for the college, for the solar wax-extractor. We shall test it thoroughly, and improve it if we can.

In regard to the weight of the eggs a queen may lay in a day, he writes:

I already have the matter of egg-laying in tow, and you shall hear. We have scales that will weigh a breath. A. J. COOK.

Agricultural College, Mich., July 19, 1885.

SHADE AND VENTILATION A PREVENTIVE OF ABSCONDING.

During a very pleasant and instructive visit paid to the apiary of Mr. S. T. Pettit, of Belmont, my attention was practically drawn to the advantages arising from shade and ventilation for hives. Mr. Pettit stated that he never had any trouble arising from his bees vacating the hive after swarming. In the past, such had been the case; but now he was pleased to say no difficulty arose from that cause, and the trouble had been a want of comfortable quarters for the bees. The hives, combs, etc., are kept in a cool place until required for use, when the swarm entering them finds a cool, shady retreat which is made additionally comfortable by, if possible, being protected from the strongest rays of the sun, plenty of room, and free access of air. Mr. Pettit stated that he was perfectly satisfied that bee-keepers would find no difficulty from swarms absconding if this method were pursued. Of course, the very best of bee-keepers can learn something of value when visiting an apiary in the height of the season, and I learned a great deal. I always do on these visits to our leading bee-keepers; and for my part, I never desire to give such information as originating with me. R. F. HOLTERMANN.

Brantford, Ont., Canada.

REPORTS ENCOURAGING.

A COLONY THAT PRODUCED 462 POUNDS OF HONEY.

WE have had a good honey harvest this time. I took 462 lbs. of extracted honey from one colony, besides the winter supply. Several other colonies were not far behind in the amount taken. A few others gathered only enough for winter. My average is probably nearly 100 pounds per colony. C. W. DAYTON.

Nashua, Iowa.

Friend D., I wish you would tell us more about that colony that gave you that yield. Was it a hybrid or Italian? and if the latter, where did you get the queen? We should also like to know the kind of honey these bees obtained, and the style of hive or the surplus-arrangement you used. We like little snatches of news from our bee-friends, but we want to know more about it.

Bees here are doing well. I have averaged 130 lbs. per colony, and am still extracting.
Verdugo, Cal., June 27, 1886. G. B. WOODBURY.

My bees are doing finely; have taken 90 lbs. of comb honey from one swarm. A. A. IRISH.
Big Spring, Mich., June 25, 1886.

Bees are doing finely on alsike. I never had them do better on clover. F. D. WOOLVER.
Munnsville, N. Y., July 3, 1886.

A TON OF WHITE HONEY IN SECTIONS.

Bees have done finely. I have a ton of white honey in sections. The bees are doing but little just now—too dry. W. E. KIMSEY.
Salem Center, Ind., July 7, 1886.

600 LBS. OF HONEY PER WEEK.

We started June 1st with 24 colonies of bees. We have at this date 55 colonies and 2000 lbs. of honey, and are extracting from 600 to 800 lbs. per week.
Creighton, O., June 22, 1886. A. H. DUFF.

EXTRACTING.

I am extracting the finest crop of white-clover honey I ever produced. Every cell is sealed, and so thick I can hardly throw it out with your extractor. E. J. SCOFIELD.
Hanover, Wis., July 9, 1886.

"BEES DOING VERY FINE."

We are very busy at wheat harvest. Bees have been doing very fine. Some stands made from 60 to 80 pounds of clover and fruit-bloom honey in sections. JOHN H. BULLERMAN.
Switz. City, Ind., June 21, 1886.

NEVER HAD BEES DO SO WELL.

I am working 200 colonies without any help, and it keeps me very busy. I never had bees do so well as they have been for two weeks. I have taken off some honey of the best quality. White clover is in bloom, and linden is full of buds, and the prospect is good for a large crop. CHARLIE W. BRADISH.
Glendale, N. Y., June 22, 1886.

4 LBS. OF HONEY PER DAY.

I think I have had good results with the hive you sent, in a short time. I put a swarm in May 30th, and June 27th I took out 46 1-lb. boxes full. The rest were under way—white-clover honey; brood-combs were full. I calculate they made 4 lbs. per day from the start. I like the hive very much.
Bristol, Pa., June 30, 1886. W. P. PRAY.

HAVE TAKEN 18 TONS.

The season opened finely. We had a big flow of honey in some localities in May, but it has shut down. I do not think there will be any late honey. What we have extracted is very clear and of fine flavor. Last year was one of our off years. I did not get to extracting. I have taken out this season, up to date, 18 tons. There will be about half a crop in this county. G. W. LECHLER.
Newhall, Cal., June 20, 1886.

BEES NEVER SO FORWARD IN THEIR WORK FOR 28 YEARS AS NOW.

I have never had my bees so forward with their work for 28 years as they have been this year. I wintered 18 swarms without loss. They commenced swarming May 20th, and two-thirds of them swarmed in May, and a swarm in May is a rarity here. In five consecutive days eight swarms came out. The others swarmed early in June. They have been doing pretty well on clover, and the present prospect seems good. J. L. HUBBARD.
Walpole, N. H., June 25, 1886.

FLOW OF HONEY WONDERFUL, AND FROM TEXAS TOO.

We are now having a wonderful flow of honey from the mesquite, and every thing is lovely again; and if it will only hold out long enough, your humble friend will yet come out with waving banners. I had 39 colonies after swarming time, but have doubled back to 24; but they are now 24 full colonies, not 39 nuclei, as the most of them were after the dearth. M. BROERS.
Gonzales, Texas, June 14, 1886.

THE SUPERIORITY OF ITALIANS OVER BLACKS.

Bees are doing well. I have new swarms hived on empty comb that have made 50 lbs. of surplus honey, and cast a swarm. I had 2 swarms of black bees come and enter hives that were full of comb; one of them was mostly killed. I had put a swarm of bees in the hive the day before they arrived. The other one stood beside a swarm of Italians, and had the same chance. The Italian swarm made 50 lbs. of surplus, and cast two swarms, while the black one has made very little surplus and no swarms. L. W. VANKIRK.
Washington, Pa., July 10, 1886.

A GOOD REPORT FROM ALABAMA.

My bees are doing well now. My best hive has made me 172 lbs. of comb honey. I put a section partly filled with honey to start them, in the sections. This is the best yield of honey I have ever known in this section. Forty or fifty pounds is a good yield ordinarily. My bees are pure Italian; black bees have given no surplus so far as I have heard this season. In regard to early queens, I think we can beat you a little usually; but this season was very unfavorable for early work. The bees gathered just honey enough to live on until about the middle of May, when white clover came in and they have just boomed since, although we have had a great deal of rain. S. G. WOOD.
Birmingham, Ala., July 8, 1886.

REPORTS DISCOURAGING.

HOW THE DRY WEATHER HAS AFFECTED THE CLOVER-YIELD.

THE season here for the production of honey has not been at all favorable, as the dry weather cut short the white clover, nor is basswood yielding honey to any extent, as the blossoms wither almost as soon as opened. Our bees will work for a short time early in the morning and evening, but they do little more than keep the supply good in the brood-chamber. Our crops are all short, and quite a large per cent of the wheat will not be harvested, as it will not produce the seed sown. One thing, however, can be said in favor of these clear scorching days: they make our solar wax-extractors work to a charm.

We have not been troubled with any swarming yet this season, as the bees have plenty of room yet in the brood-chamber.

DRONELESS COLONIES, AGAIN.

On page 546, N. C. Arnold speaks of having a colony droneless. We can say that we have three good strong colonies in our yard that have not raised a drone this season. We have kept a drone-trap on the hives nearly a month, and I failed to trap a single drone, and we have very carefully looked the colonies through, and failed to find any drones. Another point we wish to notice is, that drones were raised in the least numbers this season we ever saw; but whether it is on account of the scarcity of honey or not we can not say; but the fact *has* been, and is *now*, that there are very few drones in our apiary. After carefully looking down one side and up the other of bee-keeping, we must say the outlook is decidedly dull; but we are not ready to give up by any means. Possibly we may have rains yet that may bring out fall bloom that may help us out; but we have thus far never received any benefit from the fall bloom, as it consists principally of goldenrod, which never has produced any noticeable amount of honey for us yet.

Rochester, O., July 5, 1886. M. W. SHEPHERD.

My bees have not paid expenses yet.

BENJAMIN SHERK.

Nevada, Story Co., Ia., June 15, 1886.

NO HONEY.

My bees are lying out, and have been all summer. I have smoked them in numbers of times, but it does no good. They have not made any honey. I have read your book, but failed to find what to do. I am in trouble about them. E. J. MCCREVEY.

Tyro, Miss., June 16, 1886.

ONLY 9 LBS. FROM 15 HIVES.

Do you find that your bees are doing well this year? The bees in my neighborhood are doing very little. One man has 15 hives, and has taken off only 9 lbs. of honey. My bees have not commenced yet to build comb. I can not understand it.

WM. H. HENICK.

Boston, Mass., June 29, 1886.

See Our Own Apiary, this issue.

THE SEASON VERY DRY; BASSWOOD A FAILURE.

I have not had a natural swarm this year. However, we had a very good flow from clover—rather heavier than usual. I have taken only 100 lbs. of box, and I have not obtained a pound of extracted honey. About one-fourth of the basswood-trees bloomed, and very sparingly. Basswood is in bloom now, and it is impossible to work in the yard on account of robbers. Our only hope now is buckwheat. We are having a very dry season.

W. S. COGGSHALL, 200.

West Croton, N. Y., July 12, 1886.

DR. BLANTON'S YIELD BELOW THAT OF LAST YEAR.

Bees are not doing very well here this year. Dr. O. M. Blanton tells that he will not get nearly as much honey this year as last. Bees have swarmed very little here this year. What makes bees swarm without building queen-cells? In all other respects they are in good condition as to being full of honey and brood. F. S. ELDER & BRO.

Lake Village, Ark., June 30, 1886.

The Italian bees swarm quite frequently, without any preparation being made for swarming in the way of starting queen-cells.

HONEY-YIELD NOT LARGE; TODD'S CANDY.

The honey-yield will not be large here. Basswood is nearly a failure—but few blossoms. I had a fine yield of clover honey, and am hoping for a fall yield. I have just received a sample package of Todd's candies. They are very nice, with the unmistakable honey taste. Have you ever received samples? I think it is a splendid way to work up honey. I think friend Todd is reliable in his statements. We ought to boom his candy.

Hartford, N. Y., July 17, 1886. J. H. MARTIN.

See Editorial Department.

A POOR HONEY SEASON.

The season of 1886 has been the poorest for bees in this locality ever known. Last fall we had a fine honey-flow in September, and bees went into winter with plenty of stores. They came out in the spring, strong and in fine condition, and the season promised well up to April 20. At that time a severe drought set in, and from then to June 2 the bees did not gather enough honey to rear brood with; in fact, I do not think they got any at all. They consumed all the stores on hand; and where they were not fed, the queens quit laying. I have heard of a good many bees dying from starvation during the month of May—a thing heretofore unheard of here. The strongest colonies killed off their drones during the drought, except where they were deprived of their queens; and even where the queens were removed they would kill most of the drones. I kept my 80 colonies alive by feeding the weaker ones at dusk, and by feeding all outdoors about 4 P. M. each evening. June 2 we had a very fine rain, and for two weeks the bees stored in some honey, and some of the strongest colonies started to building comb, and would draw out foundation readily. For the past eight days they have not added any thing to their stores, though we have had fine rains lately. This is the first season in my experience where there was a failure in the honey-crop, when the field-crops were good. From all I can learn, the honey-crop is a failure all over Central and Northern Texas.

J. P. CONNELL, 68—80.

Hillsboro, Texas, June 24, 1886.

ANOTHER ADVERSE REPORT FROM TEXAS; THE LIVE OAK.

Crops of all kinds have failed in this and adjoining counties. Our bees have also done poorly. There have been a great many bees starved to death. I have had but one natural swarm this year. It has been so dry there have been no blossoms for bees to work on. I have lost only one swarm this summer. I have been in this county eight years, and bees have done well every year till now. As I told you before, I had 28 stands, and I have not taken a pound of honey as yet, and I am not likely to unless I get it from the honey-dew or live-oak balls. We have an abundance of sumac in this country and they will bloom the latter part of this month and August. Bees do well on them while they last. They gather both honey and pollen from them.

THE LIVE-OAK BALL.

We have an abundance of live-oak timber all over this country. They bear a little ball, in size from ¼ to one inch in diameter, resembling what is called the ink-ball of the black-jack tree. They seem to grow out from the small limbs of the trees, without any bloom to make them. The greatest yield from them has been in the dry years, since I have been here, so we look for a heavy crop this fall. In August they will make their appearance. They are of a whitish color; and in September and October, when the sap or water dries out of them you can see the pure honey exuding from them. Some times you can find a drop as large as a drop of turpentine hanging at the bottom of the ball. Some times you will see it in fine particles, where it exudes from the sides. You never see honey on them at all until they commence to dry up. It is a fine article of honey, and sells well. I often sell it at 25 cents per lb. J. A. Isaacks.

Broomwood, Texas, July 13, 1886.

OUR OWN APIARY.

SOME OF THE SYMPTOMS OF DEAD BROOD AS FOUND AT THE HOME OF THE HONEY-BEES.

It has been somewhat of a question with us whether the foul brood, mentioned on p. 610, is the real virulent form, or a milder type of it. At any rate, the symptoms as we find it are about as follows: The affected brood in some cases is shriveled up, and of a brown color; in others, a maturated, thickened, milky mass in the cells, and in color a grayish black. In some combs the brood is all affected, and in others only an occasional cell appears. It has been said of foul brood, that the cells are sunken; but we do not find this to be the case with our diseased brood-combs; but we do find that the cappings are punctured.

THE ODOR OF THE BROOD.

Well, as nearly as I can describe it, it is not unlike the smell from an old glue-pot—a gummy, rank odor. To me it is not "foul" or sickening, strictly speaking; but it certainly has an unmistakable flavor of blasted hopes.

After reading the foregoing description, perhaps some one who has had some experience with foul brood can inform us whether we have the real virulent form of the disease.

Up to the present time we have burned *eighty-three* combs. To treat them thus, and replace with new frames of foundation, we consider much cheaper than to try out the combs and boil the old frames in water. The old frames, and the paltry amount of wax so saved, would be almost insignificant, and the process of trying out the wax, it seems to me, would be attended with more or less risk. If a few robbers should get into the room where the combs were, and gain access to some of the diseased cells, and make their escape, well, I should not be surprised if you had "to fight it out on that line" all summer. No, sir! where 400 colonies and over are at stake, it doesn't pay to have diseased combs about, even for a minute. If you want to know our advice we would say, If you have reason to suspect that a colony is affected with foul brood, don't examine it when the bees are flying—at any rate, when there is any possible chance for a robber to get at the combs.

Now, I suppose when this issue is out a few will begin to declare that *they* have foul brood. Let me tell you beforehand, that the probabilities are—well, I might say a thousand to one that you do not have it. Do not be in haste to declare that your bees have the disease, until you have visible signs of its spreading to other colonies. If the disease, as we have it, were not seen to be contagious, we might question whether we had it.

THE 50 CHAPMAN HONEY-PLANTS AS SEEN ON OUR HONEY-FARM.

These plants have been in bloom for a week back, and from present indications they promise much. They are thistle-like, about two feet in height. Each plant is surmounted upon one or more of its stalks by balls, or what botanists term heads. These are from 1½ in. to 2½ in. in diameter, and vary in number on each plant from 6 to 10 heads. The heads, when in bloom, are covered with small star-like white flowers, in the center of which the anthers, blue in color, surround the pistil. The plants with their white balls present a very pretty appearance. We were surprised to see how the bees took to these balls. Sometimes as many as eight or ten bees can be found upon each head, sipping at the nectar in a very leisurely manner. After the bees have been upon the blossoms for a little while they will tuck their tongues under their chins and remain quiet without any visible motion. If we brush them off they will in some cases drop to the ground, as if so gorged as to be unable to fly. On remaining upon the ground a moment or so they will take wing as if nothing had happened. I then concluded that they were not actually gorged, but apparently stupefied; that is, the plant seemed to have something of a narcotic effect upon the bees. I have sometimes noticed a similar effect when bees were working on sweet clover, and I believe others have reported something of the kind.

To-day, July 27th, on going over to our patch where the Chapman honey-plants are, I found that the bees visited the heads, and returned without showing any signs of the narcotic effect mentioned above. In fact, their actions were lively, and I could not find that any of the bees would drop to the ground when I brushed them off. Perhaps the day has something to do with it.

The boss printer says, "No more room," so I'll have to stop right here. E. R. Root.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, AUG. 1, 1886.

We have treasures in the field, of wheat, and of barley, and of oil, and of honey.—Jer. 41.8.

Our subscribers now number 5814, a gain of 191.

THE EDITOR OF GLEANINGS OFF ON A WEEK'S VACATION AMONG BEE-MEN AND OTHERS.

About the time this issue is out I shall probably be at the honey-farm of H. Chapman, Versailles, N. Y. Here I expect to meet other bee-men, and in committee examine into the merits of the Chapman honey-plant, which will then be in full bloom. Leaving there, I hope to visit friend Cole, distinguished as the originator of the so called "New Agriculture;" and, time permitting, take in one or two other points.

FILLING ORDERS FROM NEIGHBOR H.'S APIARY.

As stated in another column, on account of foul brood being found in our apiary we shall fill all orders for bees and queens from neighbor H.'s two apiaries. They are situated 3½ and 2 miles respectively, from the Home of the Honey-Bees, and it is altogether improbable that the disease from our hives should be transmitted to his bees. Neighbor H. has examined several of our affected colonies, and, after carefully inspecting all his colonies, assures us that he has nothing of the kind among his bees. We think our friends may feel safe in still ordering bees of us as heretofore.

TODD'S HONEY CANDY.

We have received samples of this, and it is a very nice confectionery, with an unmistakable flavor of honey. There is some tendency to stickiness, but not very much. The trouble is entirely obviated with the caramels, which are wrapped in prepared paper, as usual, to prevent sticking or daubing. One difficulty in the way of getting it to take the place of common confectionery is, that the raw material is yet rather higher than sugar. If people will pay a little more for this kind of candy, it might come into general use. I don't think that a recipe could be given for making it at home. It could be done, probably, by a regular confectioner.

THE HONEY-CROP A FAILURE IN ENGLAND.

We are sorry to learn that our brother bee-keepers across the water have had an exceptionally poor honey season this year. In the *British Bee Journal* of July 8, page 302, we find the following:

> During an experience of over forty years we do not recollect a season more unfavorable to the bee-keeper than the present. Summers, in which rain fell on almost every day, interspersed with fitful gleams of sunshine, indeed almost honeyless seasons, wherein it was impossible for the bees to store a surplus, and scarcely to live from hand to mouth, we do remember; but a season so sunless, with prevailing cold north and east winds, blowing almost continuously from November up to the 21st of June, we can not call to mind.
>
> The results to many apiarists, especially to the uninitiated, have been most disastrous.

Perhaps this state of affairs in England will have a very beneficial effect upon *our* honey-trade.

"THE PROOF OF THE PUDDING IS IN THE EATING."

Doolittle, in the *A. B. J.* of July 21, says:

> My plans are often called expensive, and my hive and fixtures complicated; but I believe there is as little labor and cash outlay by my plan of producing $1000 worth of comb honey as by any other plan in existence. As proof, I will say that from less than 50 colonies of bees (spring count) I have cleared over $1000 each year for the past 13 years, taken as an average. I have not hired 13 days' labor in that time in the apiary, nor had any apprentices or students to do the work for me, although I have had many applications from those who wished to spend a season with me. Besides my labor with the bees, I take care of my garden and a small farm (29 acres); have charge of my father's estate; run my own shop and steam-engine, sawing sections, hives, honey-crates, etc., for myself and neighbors; write for seven different papers, and answer a host of correspondence.
>
> The old saying is, "The proof of the pudding is in the eating," and so I now say, as I have said before in these columns, that all I have to recommend the plans I use is the success attained by them.

Does this not in part answer the wail of a few, "Bees don't pay"? The old saying, "What man has done man can do," applies right here. It may be there is something in the locality; but certainly a great deal rests with the man.

BEES AND BEE-KEEPING, BY FRANK CHESHIRE.

We are in receipt of Volume I. of this work, recently noticed by Prof. Cook. So far as the natural history of the honey-bee is concerned, this book in many respects is far in advance of any thing that has ever before appeared in print; in fact, I am astonished and pleased to find that we have, in any quarter of the globe, a microscopist who has gone into this subject so thoroughly as Frank Cheshire. The typographical appearance of the work is also simply a wonder; and the engravings, in beauty and excellence, are superior to any thing it has ever before been my fortune to meet anywhere in the whole realm of scientific knowledge. At the present writing I have not been able to read the book so thoroughly as I mean to do. It is, without doubt, a wonderful addition to our fund of knowledge in regard to the structure of the bee. Very likely the book contains errors, for to err is but human. The life-sized pictures of a full-grown bee are far in advance of any thing that has ever been accomplished heretofore, and we can only congratulate friend Cheshire on having been able to procure the assistance of such skillful artisans to bring his work before the world. The price of the book is $2.50—perhaps twice as much as books of a similar size cost in our country; but the beautiful engravings alone ought to be sufficient to induce any one to pronounce the book cheap at $2.50. We can mail it at that price.

MR. THOMAS HORN.

Just after our last issue went to press, the following note to Mr. Horn's customers came to hand:

> TO MY CUSTOMERS WHO ARE READERS OF GLEANINGS.
>
> On the 20th of July I will have filled all orders now on my books for bees and nuclei; and by the 25th, for queens; so if you have ordered any goods that you have not received, please let me hear from you at once, and oblige yours truly,
>
> Sherburne, N. Y., July 12, 1886. THOMAS HORN.

Very good, friend Horn; and we sincerely trust that by the time this reaches our readers there will not be one who can say his bees, queens, or *money* has not been received. If there are any such, however, they will please write directly to Mr. Horn. And I would suggest that they also state what will make every thing satisfactory, if it is not already so. If Mr. Horn does not respond promptly, then (but not before) please write us. Mr. Horn has sent us a very pretty photograph of his apiary, showing that he has a large number of hives employed in his business. He also states that he has filled over 500 orders this season, and that less than two per cent have made any complaint of dissatisfaction.

GOODS AT A REDUCTION OF 25% FOR FAIRS.

To those of our friends who desire to exhibit our goods at their county or State fairs this season, and distribute our price lists to those interested in bee-keeping, we will offer the following inducement: You may deduct 25% from the retail price of any or all of the following-named articles in our price list, providing you state in your order, in good faith, that the goods are to be on exhibit at your fair:

One saw-table for hive-making;
One dovetailing table;
One cutter-head and table;
One V-groove section machine (only 20 per cent off this);
One comb-fdn. machine, 10, 12, or 14 inch;
Clark's, Parker's, and Gray's fdn. fasteners, in any quantity;
One honey-extractor, any size;
One uncapping-can;
Metal corners, in any quantity;
50 brood-frames, either all-wood or metal-cornered, in flat, wired, or unwired;
Smith fountain pump or sprinkler;
One of each or any style of hives given in our catalogue, put up or in the flat;
One of each or any style of retailing cases;
One pair of square honey-cans in a box;
One honey-knife, each or any style;
One lamp nursery;
One sheet perforated zinc, or sample honey-board;
One box of 500 sections, 1-piece V-groove, 4¼ x 4¼;
Smokers in any quantity;
Bee-veils, one of each kind;
Wax-extractors, one of each or any one.

We will also let you have all the A B C's you want to sell, @ 40% discount; the more you sell, the better; but you must not sell them below our retail price unless you sell more than one at one sale.

$2.50 CHEAP $2.50

I will sell three-frame (Simp. size) nucleus colonies, all straight worker-comb, well-filled with brood and honey, 1 pound of Italian bees, and nice tested Italian queen, for only $2.50. Now, friends, I guarantee these colonies to be first-class in every respect. Fifty colonies ready now. A fine lot of untested queens at 75 cts.; $4.00 per ½ doz., and tested at $1.00; $5 50 per ½ doz. Safe arrival and satisfaction guaranteed. **F. W. MOATS,**
14d The Bend, Defiance Co., Ohio.

NOW READY, ITALIAN QUEENS.

1 queen. $1.00; 2, $1.80; 3, $2.50; 5, $3.75. Bees by the pound, nucleus. and colony. 13-15db
L. T. HOPKINS, Conway, Franklin Co., Mass.

BEE-HIVES,

One-Piece Sections, Section Cases, Frames, &c.,

OF SUPERIOR WORKMANSHIP, FROM

SMITH & GOODELL,

Manufacturers of and Dealers in

APIARIAN SUPPLIES,

ROCK FALLS, WHITESIDE CO., ILL.

3tfd *Send for Price List.*

ITALIAN QUEENS, by Return Mail, Tested, $1.00. Untested, 75 cts. Bees, 50 cts. per lb.
14-15d GEORGE STUCKMAN, Nappanee, Ind.

VANDERVORT
COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

For Sale. COLONIES, NUCLEI, and QUEENS, AT LOWEST PRICES.
11-16db GEO. D. RAUDENBUSH, READING, PA.

CARNIOLAN
QUEENS & BEES A SPECIALTY.

Send for Descriptive Price List and Circular.

9tfd **H. F. SHANNON, Clarksburg,**
(Formerly of Spring Hill.) **Decatur Co., Ind.**

KENTUCKY QUEENS. Italians, Holy-Land, and Albinos. Tested, $2.00; untested, $1.00 each. Bees, 75c per pound after 15th July. PELHAM & WILLIAMS,
13-16db Maysville, Ky.

ITALIAN BEES IN IOWA.

60c to 85c per lb. Queens, 30c to $1.75, according to kind and time. Also bee-supplies and honey. Order from free circular. **"How to Raise Comb Honey,"** an illustrated pamphlet, just out, price 5 cents. Address OLIVER FOSTER,
13tfdb Mt. Vernon, Linn Co., Iowa.

WE WILL SELL

Chaff hives complete, with lower frames, for $2.50; in flat, $1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. **Italian Bees and Queens.** Send for Price List. 23 22db
A. F. STAUFFER & CO., Sterling, Ills.

QUEENS, 1886. UNTESTED,

From select imported mother. After May 15, $1.00. Wax worked into fdn. for a share, or by the pound. Satisfaction guaranteed. **THOS. & BENJ. YOUNG,**
10-15db LA SALLE, LA SALLE CO., ILL.

ITALIAN QUEENS. Untested, 75c.; six, $4.00. Tested, $1.50. Write for price list of bees, fdn., etc.
13-15db JNO. NEBEL & SON, High Hill, Mo.

FIRST IN THE FIELD!!

The Invertible Bee-Hive
Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4 3db

BEE - KEEPER'S GUIDE;

Or, MANUAL OF THE APIARY.

12,000 SOLD SINCE 1876.

13th THOUSAND JUST OUT!

10th THOUSAND SOLD IN JUST FOUR MONTHS!

4000 Sold Since May, 1883.

More than 50 pages, and more than 50 fine illustrations were added in the 8th edition. The whole work has been thoroughly revised, and contains the very latest in respect to bee-keeping. It is certainly the fullest and most scientific work treating of bees in the World. Price, by mail, **$1.25.** Liberal discount to dealers and to clubs.
A. J. COOK, Author and Publisher.
13-23 Agricultural College, Mich.

W. Z. HUTCHINSON,

ROGERSVILLE, GENESEE CO., MICH.,

is rearing Italian queens for sale again this season, and can furnish them by mail, safe arrival guaranteed, as follows: Single queen, $1.00; six queens for $5.00; twelve or more, 75 cts. each. Tested queens, $2.00 each. Make money orders payable at Flint, Mich. Send for price list of bees (full colonies, or by the pound). Given foundation, white-poplar sections, hives, cases, feeders, empty combs, etc. 13tfd

A. J. KING'S New Circular of **CARNIOLAN, SYRIAN,** and **ITALIAN QUEENS,** etc., will be *SENT FREE* on application. Address
13tfdb A. J. KING, 51 Barclay St., New York.

HEADQUARTERS IN THE SOUTH

FOR THE MANUFACTURE AND SALE OF

BEE - KEEPERS' ∴ SUPPLIES.

The only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, etc. The Viallon and Root Simplicity Hives a Specialty.

ITALIAN QUEENS,

Untested, in April, $1.25 each; $13.00 per doz. From May 5 to June 1, $1.10 each, $12.00 per doz. After June 1, $1.00 each, $10.00 per doz. Tested, $2.50 each; select tested, $3.00 each to first of June. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

With pure Italian queen, containing 3 pounds of bees when received; in April, $4.00; after May 25, 25 cts. less. Safe arrival and satisfaction guaranteed. For more particulars, send for catalogue for 1886.
P. L. VIALLON,
11tfd **Bayou Goula, Iberville Parish, La.**

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

Batchelder's Drone and Queen Trap

Is the only one made that does not hinder the bees in their work. Send 85 cents for sample. Send for circular, and see what A. I. Root says about it.
10tfdb **J. A. BATCHELDER, Keene, N. H.**

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

REDUCTION IN PRICES.

We hereby notify our customers that there is a reduction in foundation from the prices quoted in our *March* retail price list. All parties interested will please mail us a card for new prices.

CHAS. DADANT & SON,
11tfdb **Hamilton, Hancock Co., Ill.**

HYBRIDS AT $3.00 PER COLONY.

Must be sold prior to Aug. 25th, 25 colonies of bees, in frame hives; plenty of honey to winter, only $3.00 each. I am going to Pacific Coast. 14-15d
Address H. H. WINSLOW, Liberty, Clay Co., Mo.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

Foundation-Mill For Sale.

One ten-inch Root comb-mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $15.00. The list price of a new mill of this kind is $20.00. **A. I. ROOT, Medina, O.**

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 13tfd
*S. F. Newman, Norwalk, Huron Co., O. 13tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 11tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala. 13tfd
*E. Kretchmer, Coburg, Mont. Co., Iowa. 11tfd
D. McKenzie, Camp Parapet, Jeff. Parish, La. 13tfd
Ira D. Alderman, Taylor's Bridge, Samp. Co., N.C. 13tfd
*Jos. Byrne, Ward's Creek, East Baton Rouge Par., La. 11ttfd
J. W. Winder, Carrollton, Jeff. Par., New Orleans, La. 3tfd
*E. Burke, Vincennes, Knox Co., Ind. 3-1
Richard H. Bailey, Ausable Forks, Essex Co., N. Y. 5-15
S. M. Darrah, Chenoa, McLean Co., Ill. 7-17d
S. H. Hutchinson & Son, Claremont, Surry Co., Va. 7-17d
*N. E. Cottrell, Burdick, Porter Co., Ind. 7-17d
Peter Brickey, Lawrenceburg, And. Co., Ky. 9tfd
C. C. Vaughn, Columbia, Tenn. 9tfd
*J. W. Keeran, S. E. cor. Mason and Moulton St., Bloomington, Ill. 9tfd
D. A. McCord, Oxford, Butler Co., O. 9-19d
W. S. Ward, Fuller's Station, Albany Co., N. Y. 1315d
J. B. Hains, Bedford, Cuyahoga Co., O. 15tfd
C. P. Bish, Petrolia, Pa. 15-19

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.
P. L. Viallon, Bayou Goula, Iberville Par., La. 1tfd
C. W. Costellow, Waterboro, York Co., Me. 1-23
Kennedy & Leahy, Higginsville, Laf. Co., Mo. 23tfd
E. Kretchmer, Coburg, Montgomery Co., Ia. 23tfd

DR. J. W. CRENSHAW, Versailles, Woodford Co., Ky., has untested Italian queens for sale at 75 cents each. 14-15d

COLONY in 10-frame hive, $5.00; tested queens, $1.50; untested queens, 75 cts.; 2-frame nucleus, $1.50; 3-frame nucleus, $2.00 (no queen). I have Italian bees; size of above frame, 9⅛x17⅝.
OTTO KLEINOW, Detroit, Mich., (Opp. Fort Wayne Gate).

SURE TO SEND

FOR MY NEW

PRICE LIST FOR 1886,

Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb

A. B. HOWE, Council Bluffs, Ia.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—The honey market is almost devoid of interest, more particularly in comb honey. We find quite a large stock being carried over in dealers' hands; although our stock is light, what we have is dark and off grades, and will be in good position for the coming crop. It is difficult to tell what prices will be on the new crop; but from reports received from nearly all sections of the country, we think prices will be low. Present quotations as follows:

Fancy white comb, 1-lb. sections	10@12
" " " 2-lb. "	8@10
" buckwheat 1 and 2-lb. sections	5@8
Extracted, white clover	5c
" California	4½@5
" Southern per gallon	45@55

Beeswax, 23@25. **McCAUL & HILDRETH BROS.,**
July 10, 1886. 34 Hudson Street, Cor. Duane St.
New York City.

KANSAS CITY.—*Honey.*—The receipts of new honey are good, and very fine. The demand is good, and stock in store is light of one-pound frames.

One-pound frame, white clover,	13@14
One " " dark	11@12
Two " " white clover	11@15
" " " dark	8@10
" " " California white	10@11
" " " dark	8@9

Extracted white clover, 5@6; dark, 3@4. California white, 4½@5. Dark, 3½@4. *Beeswax*, 20@22.
July 22, 1886. **CLEMONS, CLOON & CO.,**
Cor. 4th and Walnut St's, Kansas City, Mo.

MILWAUKEE.—*Honey.*—The market is fairly supplied with honey, and trade is dull, and prices depressed: outlook for a large production, and already some is being peddled about the city by the raisers themselves, demoralizing the prices, which should not be done. We will quote choice white, in 1-lb, sections, 14@15; the same in 2-lb. sections, 13@15; extracted, in bbls. and kegs, white, 5@7; in tin cans, white, 6@8; extracted, dark, in bbls. and kegs, 4@6. *Beeswax*, 25. **A. V. BISHOP,**
July 23, 1886. 142 W. Water St., Milwaukee, Wis.

CINCINNATI.—*Honey.*—There is no new feature in the market. Demand from manufacturers is still dull, but somewhat improved. The honey harvest is below a medium crop in Ohio, Indiana, and Kentucky; but no improvement in prices need be expected, judging by present indications.—Prices for extracted honey range from 3½@8c on arrival. No arrivals yet of new comb honey, and prices nominal. *Beeswax.*—This is in fair jobbing demand, and arrivals are good. It brings 18@22 cts. for good to choice yellow on arrival. **CHAS. F. MUTH & SON,**
S. E. Cor. Freeman and Central Avenues,
July 19, 1886. Cincinnati, Ohio.

CHICAGO.—*Honey.*—Honey is coming on the market very freely, and is of good quality. At present there is not any demand, so that prices are nominal. Any offer at 12@13c would be accepted, yet 14c is being asked. Extracted, without change.
Beeswax, 25. **R. A. BURNETT,**
July 21, 1886. 161 So. Water St., Chicago Ill.

DETROIT.—*Honey.*—Comb honey in 1-lb. sections is bringing 11@13c per lb., and the market is well supplied. Extracted is dull, and very few sales, bringing 8@9 cts. *Beeswax* is in good demand, but a little lower for average wax. We are paying 23c. **M. H. HUNT,**
July 21, 1886. Bell Branch, Mich.

CLEVELAND.—*Honey.*—The market at present is rather dull; prices, however, are well maintained. Choice new 1-lb. sections of white are selling at 14c.; second quality, 12@13. Extracted not salable.
Beeswax, 22@25. **A. C. KENDEL.**
July 26, 1886. 115 Ontario St., Cleveland, Ohio.

NEW YORK.—*Honey.*—There is no change in the market of honey since our last report, about two weeks ago. **THURBER, WHYLAND & CO.,**
July 12, 1886. Reade and Hudson Sts.,
New York, N. Y.

BOSTON.—*Honey.*—There is no change in prices of honey. Sales are very light. **BLAKE & RIPLEY,**
July 12, 1886. 57 Chatham St., Boston, Mass.

FOR SALE.—3000 lbs. of perfectly ripened white-clover extracted honey, in 55-lb. iron-jacket tin cans at 7c per lb., and Mr. A. I. Root's price of can.
MRS. NELLIE M. OLSEN,
Nashotah, Waukesha Co., Wis.

FOR SALE.—1000 lbs. white comb honey in sections, put on board cars here for 14c per lb.
WM. WITHROW, Paint Valley, Holmes Co., Ohio.

FOR SALE.—2000 lbs. of white-clover and basswood honey in 1-lb. sections, and 3500 lbs. of extracted, put up in 25-gal. barrels. What can you pay for it, delivered here on board of cars? If you would like a sample, I can send you one.
H. B. MORRIESOON, Fayette, Fayette Co., Iowa.

FOR SALE.—A No. 1 extracted honey, from clover and basswood, in the following packages—package free, delivered on board cars in Newton: 3 one-half bbls. @6½c per lb.; 2 10 gallon kegs @ 7c per lb. Also about 150 gallons in open bbls. Satisfaction guaranteed. **SAMUEL LISTER**, Newton, Iowa.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

A few black queens, at 15 cents.
JNO. C. CAPEHART, St. Albans, W. Va.

Mismated queens, reared from select tested Italian queens. I have 20 now, which will go for 40 cts. apiece. Prompt shipment and safe arrival guaranteed. **S. H. COLWICK**, Norse, Bosque Co., Texas.

I shall have 8 hybrid queens in August, at 25 cts. each; 5 for $1.00. I insure safe delivery—all young queens. **BEN. J. COLE,**
Marietta, Washington Co., Ohio.

I shall have a few black and hybrid queens in August, to sell at 20 and 35 cents. Safe arrival guaranteed. **LUTHER W. GRAY**, Orlando, Fla.

I have 14 mismated queens which I want to sell. Price, three 30-cent ones and eleven 50-cent ones.
R. H. BAILEY, Ausable Forks, N. Y.

I have a few black and hybrid queens for sale, at 25 cts. each; also a few queens that produce mostly three-banded bees, at 50 cts. each. I warrant all to be good prolific queens. **L. W. VANKIRK,**
P. O. Box 178. Washington, Pa.

I have a few fine hybrid queens for sale at 40 cts. each. **LEE SPAHR**, Xenia, Ohio.

I have some hybrid queens in the neighborhood that I will sell at 25 cts., yellow and prolific.
C. C. KIRKMAN, Coxville, Pitt Co., N. C.

I have 20 prolific hybrid queens to dispose of at 25 cts. each, rather than kill them.
W. A. SANDERS, Oak Bower, Hart Co., Ga.

I have several young hybrid qoeens to dispose of. Will mail at 35 cts. each, or 3 for $1.00.
N. ADAMS, Sorrento, Orange Co., Fla.

I am Italianizing, and will have over 30 queens which I will sell for 10 cts., and a provisioned queen-cage each. **W. J. FINCH, JR.**, Chesterfield, Ill.

One dozen hybrid queens for sale from Aug. 1st to 15th, for 30 cts. each, or four for $1.00. Ready now. **GEO. P. KIME**, Evansburgh, Cosh. Co., O.

I have some Italian hybrid queens that I will mail at 30c each, and guarantee safe arrival.
N. A. KNAPP, Rochester, Lorain Co., Ohio.

EXPLANATION: To the many who have sent to us for our catalogue, and have not received one, we would explain that the demand has been greater than we could supply, but we will send one of our next annual edition to all such as soon as issued. **WATTS BROS.**
Murray, Clearfield Co., Pa. 15d

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EXCHANGE DEPARTMENT.

WANTED.—To exchange 20,000 strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale, 75 cts. per 100; $4.00 per 1000, for bees, foundation, or improved poultry.
10tfdb W. J. HESSER, Plattsmouth, Neb.

WANTED. — A partner to take half-interest in an Apiary, with a little capital. Address
LOUIS WERNER, Edwardsville, Ill.

FOR SALE.—Pasteboard boxes for inclosing section honey. The best out! Improved over last year. Thousands sold! Price, 1-lb. size, $6.00; 2-lb., $8.00 per 1000. One sample, 5c. 14-oz. square glass jars, $5.00 per gross; 1½ gross in case. Fine assortment of honey labels. Catalogue free.
14-17db A. O. CRAWFORD, S. Weymouth, Mass.

WANTED.—To exchange bees or queens for foot-power saw. Will sell fine tested queens for $1 each; untested, 70 cts. each, either Syrian or Italians. ISRAEL GOOD, Sparta, Tenn.

WANTED.—To exchange Italian queens for alsike clover seed. J. T. VAN PETTEN, Linn, Kan.

WANTED.—To exchange best drone-traps made for one or more extractors, Simplicity frame. Send for circular.
15tfdb J. A. BATCHELDER, Keene, N. H.

WANTED.—To exchange for comb or extracted honey, cash or offers, 15,000 pot-grown strawberry plants of the best varieties; also game cocks. Can give best reference. GEO. M. WERTZ,
15tfdb Johnstown, Cambria Co., Pa.

FOR SALE, or will exchange for 20 two-story Simplicity hives, complete, in flat, golden Italian queens. Price, mismated, 50 cts.; untested, 75 cts. Tested, $1.50; best select tested, one year old, $2.50. Safe arrival and satisfaction guaranteed. Reference, Bank of Princeton, and L. Goodwyn, P. M., Frenchville, W. Va. L. L. HEARN,
Frenchville, W. Va.

WANTED.—Situation by young man who understands bee-keeping and hive-making; is handy generally, and willing to be generally useful. $16 per month south (Texas preferred), $18 north, if job is steady and pay sure; 6 years' experience; good reference; present engagement expires Nov. 10th. Write at once. A. DURWARD, Merrimac, Wis.

WILL sell for cash or give in exchange for good horse, 25 colonies of black, hybrid, and Italian bees, in S. hives, on 5 frames brood each, at $5.50, $6.00, and $6.50 respectively. Will ship long as weather permits. 16-21db J. A. KIME, Fairfield, Adams Co., Pa.

WANTED.—To exchange for honey, or offers, three chaff hives, taking 10x15 frames; 40 brood-frames; 400 1-lb. boxes; two hives; bees; drone-trap; section-cases, etc. OTTO LESTINA.
16d Derby, New Haven Co., Conn.

FOR SALE.—A two-story brick house, with five lots, good barn, ice-house with cooling-room, bee-house, honey-house, wood-house, etc. Grapes, berries, apples, and cherries on the place; in small town, location suitable for bee or chicken business. Will sell cheap for cash, or exchange.
15-18db ANABEL RONALD, Grand View, Iowa.

WANTED.—To exchange Wyandotte fowls for Italian bees. W. H. OSBORNE, Chardon, O.

FOR SALE.—20 tested Italian queens at $1.00 each, or will exchange for comb fdn., or 1-lb. one-piece sections, 4¼x4¼. Address
16 JOS. GRIFFIN, Rio, Alb. Co., Va.

WANTED.—To exchange bees by the pound, nucleus, or full swarm, for any thing I can use in the apiary; or a male Poland China pig; or for cash. Write for prices and make offers.
16d LUTHER PURDY, Killbuck, Holmes Co., O.

WANTED.—To exchange one 3-oz. silver open-face watch, for best offer of comb or extracted honey, or offers. CHAS. L. HILL, Dennison, O.
16tfdb

WANTED. — To exchange Italian bees, on 10 frames, L. size, drawn from fdn., for a 48 or 51 inch *Star* bicycle.
16d C. H. SMITH, Pittsfield, Mass. Box 908.

Black and Hybrid Queens For Sale.

A few hybrid queens for sale, at 25 cents each.
O. H. HYATT, Shenandoah, Iowa.

I have about 3 black and 10 or 12 hybrid queens to sell at 20 cts. for black, and 30 for hybrid, or 4 for $1.00; all young and prolific. Some of them are daughters of hybrid queens, mated with pure Italian drones.
LUTHER PURDY, Killbuck, Holmes Co., O.

Four fine Italian queens in exchange for cockerels of any good breed chickens.
CHAS. L. HILL, Dennison, Ohio.

I have a few mismated Italian queens to dispose of at 35 cts. each, or 3 for $1.00. These queens are almost pure.
GEO. W. BECKHAM, Pleasant Hill, Lan. Co., S. C.

Wishing to Italianize my apiary, I have one hundred black and mismated queens for sale; mismated, 40 cts., and blacks, 15 cts. Address
W. G. HAYEN, Pleasant Mound, Bond Co., Ill.

Black and hybrid queens for sale now. Can ship upon receipt of order, and will guarantee safe arrival. Prices, black, 20 cts.; hybrid, 35 cts.
16-17-18 J. A. BUCKLEW, Clarks, Coshocton Co., O.

I have for sale 2 first-class hybrid queens at 40 cts. each. W. J. HILLMAN, Green River, Vt.

I have 4 hybrid queens, for which I will take 25 cts. apiece and guarantee safe delivery.
D. M. WEYBRIGHT, New Paris, Elkhart Co., Ind.

I have 75 black and hybrid queens for sale at 25 cents each; or I will exchange for strawberry-plants, 4 queens for 100 plants.
THOMAS GEDYE, La Salle, La Salle Co., Ill.

Mismated queens, reared from select tested albino and bright Italian queens, now over 5 weeks laying, at 50 cts. each. Shipped by return mail.
DR. JOHN M. PRICE, Tampa, Hillsboro Co., Fla.

HELP! HELP! HELP!

Me develop my honey-trade in Philadelphia by consigning me your honey. Those I have sold for, express satisfaction.

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Sample package mailed on receipt of 25 cts. Special rates for quantities for fairs.
1618db ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

FOR **BEES**, see my adv't in July 1st No., p. 526.
15d H. M. MOYER, HILL CHURCH, BERKS CO., PA.

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To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2tfd **Hartford, Washington Co., Wis.**

$2.50 CHEAP $2.50

I will sell three-frame (Simp. size) nucleus colonies, all straight worker-comb, well-filled with brood and honey, 1 pound of Italian bees, and nice tested Italian queen, for only $2.50. Now, friends, I guarantee these colonies to be first-class in every respect. Fifty colonies ready now. A fine lot of untested queens at 75 cts.; $4.00 per ½ doz., and tested at $1.00; $5.50 per ½ doz. Safe arrival and satisfaction guaranteed. **F. W. MOATS,**
15-17db The Bend, Defiance Co., Ohio.

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Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

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KENTUCKY QUEENS. Italians, Holy-Land, and Albinos. Tested, $2.00; untested, $1.00 each. Bees, 75c per pound after 15th July. PELHAM & WILLIAMS,
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60c to 85c per lb. Queens, 30c to $1.75, according to kind and time. Also bee-supplies and honey. Order from free circular. **"How to Raise Comb Honey,"** an illustrated pamphlet, just out, price 5 cents. Address OLIVER FOSTER,
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4-3db

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Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

COLONY in 10-frame hive, $5.00; tested queens, $1.50; untested queens, 75 cts.; 2-frame nucleus, $1.50; 3-frame nucleus, $2.00 (no queen). I have Italian bees; size of above frame, $9\frac{1}{8}$x$17\frac{5}{8}$.
14tfdb OTTO KLEINOW, Detroit, Mich., (Opp. Fort Wayne Gate).

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FOR MY NEW

PRICE LIST FOR 1886,

Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb

A. B. HOWE, Council Bluffs, Ia.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XIV. AUGUST 15, 1886. No. 16.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

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THE WAX QUESTION.

HOW MANY POUNDS OF HONEY DOES A POUND OF WAX ACTUALLY COST US?

THE beautiful agreement of authorities, that it requires twenty pounds of honey to make one pound of wax, is not, I believe, owing to a concurrence of experiments. The experiments often indicate much more than that —100 to 1 sometimes. The authorities concur that 20 to 1 is about all we can be got to believe, and so state it at that. The fact seems to be, that no experiment of this kind is worth a rye straw unless the bees have their entire liberty, and are at work on natural supplies in a perfectly natural way. It is difficult to grant them this much, and at the same time weigh things as accurately as exact science relishes; but there is no help for it. Truthful approximations are better than exact figures that begin and end in utter falsehood.

That the prevalent doctrine is an utter falsehood, might be readily inferred from the way bees treat wax after they get it secreted. Much of it is at times dropped to the bottom of the hive, and blown out as worthless litter. The scales in which it is formed seem quickly to get a little dry and stiff, and they prefer to secrete fresh ones. Now, the bee is, by nature, a miser—and 20 to 1 is somewhere near the present ratio of silver to gold. When you can find a miser who will pinch the silver coins till they squeak, and at the same time throw the gold coins on the floor, and sweep them out into the street, then you may look for a bee that will be equally wasteful of his resources. True, the bee can not reason about the matter; but the developments of nature, and the *ultimate* conclusions of reason are usually in accord. That is, nature has already reached the point where reason, after floundering about, and making all the mistakes possible, will finally come to rest. We can deduce the same thing again by this little simple experiment: Expose a section of nice comb-honey. The bees, if not otherwise engaged, will carry the honey away with an eagerness that amounts almost to frenzy. But how about the delicate comb, worth twenty times as much as the honey, weight for weight? The bees are perfectly capable of carrying home the comb, and have been known to do so as an occasional eccentricity; but ordinarily they can not be made to take it.

Now for the experiment which you requested me to write up: July 4th, 1885, a good but rather small prime swarm of bees was hived on a delicate scale which will weigh ounces, in order that their income and wax product might be estimated as closely as possible. The swarm weighed just three ounces less than four pounds, and was hived about sundown. During the night they decreased in weight two ounces. The average decrease in weight at night during the experiment was about twice this, or four ounces per night.

The plan of the experiment was to let them work undisturbed four days (as long as they could without eggs hatching), and then to cut out the products of their labor, weigh the amount cut out, render the wax, and weigh that. From these data a ratio can be approximated. After this they were to be undisturbed four days more, and then be fleeced again. Then a third trial of the same period was to be put upon them, after which the experiment was to be closed. The colony was weighed every morning and night.

This plan leaves several things not quite positive. How about the honey they had in their sacs to commence with? A four-pound swarm *may* have over a pound of honey. At other times they have only a very few ounces. This swarm evidently had a small supply, as they weighed seven ounces more after the first cutting was made than they did the morning after hiving. At any rate, the honey they had in their sacs at the close of the experiment offsets what they had to begin with; and I make an allowance in the separate trials for the change in the weight of the bees. Did they have any wax already secreted? I think not. The evidence is that they did better the second trial than they did the first. I make no attempt to estimate the daily mortality. The *usual* loss of a colony for 12 days, according to the authorities, should be about one-fourth of the original weight; but the fact that this colony weighed the same at the close that it did in the beginning shows that the mortality was not a pound of bees, nor any thing like it. Perhaps mortality does not become heavy until there is brood to feed. Some honey gathered at morn is eaten and dissipated before night, and so escapes the scale, while the wax product of it remains. To balance this on the other hand, all these pounds and ounces are pounds and ounces of rather raw nectar, not of ripe honey. As to the amount of honey used as food at night, a colony rearing brood rapidly uses seven ounces per night; an active colony not rearing much brood, from one to three ounces; a colony in a quiescent state, only a fraction of an ounce. During this experiment there was an average loss by night of 4 ounces. I have assumed that one-half of this was waste caused by vitality and muscular action, and one half the chemical waste of elaborating wax.

FIRST TRIAL.

First day's gathering of honey and pollen, 6 oz.; 2d, 13 oz.; 3d, 8 oz.; 4th, 16 oz; total, 43 oz. Subtract from this—Honey and pollen cut out, 19 oz. Four days' food, 8 oz.; increase of honey in sacs, 7 oz.; total for subtraction, 34 oz.

Remainder, or amount spent in secreting wax, 9 oz. Weight of wax, 2 oz. 10 dr. Honey spent in making 1 oz. of wax, 3½ oz., nearly.

SECOND TRIAL.

First day's gathering of honey and pollen, 0; 2d, 12 oz.; 3d, 11 oz.; 4th, 25 oz.; total, 48 oz. Add also 6 oz. decrease of the amount in their honey-sacs. Corrected total, 54 oz.

Subtract from this—Honey and pollen cut out, 35 oz.; 4 days' food, 8 oz. Total for subtraction, 43 oz. Remainder, or amount spent in secreting wax, 11 oz.

Weight of wax, 4 oz. Honey spent in making 1 oz. of wax, 2¾ oz.

THIRD TRIAL.

First day's gathering of honey and pollen, 5 oz.; 2d, 5 oz.; 3d, 22 oz.; 4th, 16 oz.; total, 48 oz. Add also 1 oz. decrease of the amount in their honey-sacs. Corrected total, 49 oz.

Subtract from this—Honey and pollen cut out, 33 oz.; four days' food, 8 oz. Total for subtraction, 41 oz.

Remainder, or amount used in secreting wax, 8 oz.

Weight of wax, 3¼ oz. Honey spent in making 1 oz. of wax, 2½ oz., nearly.

It will be seen that the average of the three trials gives very nearly the ratio of three to one. Perhaps a less mincing summary would hit the average reader more forcibly. Here are bees that made almost ten ounces of wax. *The books say that they must have had over twelve pounds of honey to do it with, while in fact they were allowed to keep just three pounds and a quarter.* Quite a discrepancy, is it not?

It does not follow that we are going to produce big crops of wax at a profit right away. There is another difficulty to surmount. I have twice run a good colony the whole season for wax, and so I have a right to know. After 10 or 15 days of wax-secreting, bees seem unable to secrete much more; and how to get the new supply of young bees promptly, without stopping the wax secretion of the first set, is the problem. E. E. HASTY.

Richards, O., July 6, 1886.

Friend Hasty, the facts you give us are astonishing, to me at least; at any rate, your experiment is certainly a very valuable one. It appears to be all right, but perhaps there may be something you have overlooked in it, after all. I am very glad indeed to be able to submit it to the keen intelligence of the readers of GLEANINGS. How is it, friends? has Hasty made any big mistake in this matter? You say you ran a good colony the whole season for wax; why do you not tell us right here how much wax you got? I have for some time felt that there must be a mistake about the 20 lbs. of honey for one of wax, because of the quantity of wax single colonies have sometimes furnished. Now, then, who will tell us how we shall go to work to produce wax at a profit? Can we do it by feeding sugar? I have noticed the lavish way in which bees sometimes seem to kick around their scales of wax. It has, however, been, as a general thing, after I had been feeding them and got them a little out of their natural and normal condition.

DESCRIPTION OF BEES, QUALITY OF QUEENS, ETC.

FRIEND DOOLITTLE'S EXPERIENCE IN TESTING THE DIFFERENT RACES.

I HAVE been besieged of late by some parties in Pennsylvania to write an article for GLEANINGS on the qualities of different races of bees, color of queens, and the quality of queens reared by natural swarming as compared with those raised "artificially," as it is termed. I wrote the parties that, as I was a queen-breeder, I did not think friend Root would care for my views on these subjects for GLEANINGS, for it might look as if I had an "ax to grind;" but this does not pacify; an article they must have, so I have consented to try a rather difficult task, for I know that few if any will agree with me on all the points. However, I shall try to give an impartial article, telling just what I believe to be the truth. First, then, we have the

QUALITIES OF THE DIFFERENT RACES.

The black, or German bee, probably all are familiar with. All the really good qualities I know of them is their readiness to enter the sections and build comb, and smooth white capping of the honey in the same. Their poor qualities, as I find them, is their inclination to rob, and willingness to be robbed; their running from the combs, and out of the hive, unless handled very carefully; do not resist the wax-moth; are poor honey-gatherers, except in times of plenty; inclined to sting with little provocation, and do not do work in a business-like way. This last particular I do not know that I ever saw mentioned; and by it I mean that they live only from hand to mouth, as it were, calculating only a day or so in advance. They go into the sections to work, and build comb only so long as honey comes in plentifully. The least slack stops comb-building, only that the cells are lengthened on that already built, so that I have frequently found sections one-fourth full of comb, and that one-fourth lengthened out, filled, and capped over without being attached to the sections except at the top. I never saw any thing of the kind with any other race of bees, for they all start and build the sections full of comb as if they calculated to do something business-like. If another yield of honey comes in a few days, these bees start the comb down a little further, when it is again stubbed off if the flow slackens, and again and again do the same thing until I have counted as many as five times in a single section where they have started and stopped, making the face side of the comb resemble a washboard. It has been claimed that there is a difference in these bees, some saying that there is a large *brown* bee of superior merit; others claim great things for their *gray* bees, both of which are said to be a great way ahead of the *little black* bee; but I wish to say, that, after getting queens from several claiming to have these superior strains, and placing them beside the "little black bee" our forefathers used to have, there is not a bit of difference in them so far as I can see, or any of my bee-keeping friends to whom I have shown them. Well, I must "curtail" or I shall not get along very fast.

I have thoroughly tried the Syrians; and for this locality I consider them the poorest of all the bees yet brought to this country. The two great faults which make them thus are, first, not breeding when they should breed, and then breeding beyond measure when they ought to breed but little, which results in few laborers in the field in the honey-harvest, and countless numbers of consumers after the harvest is past, to eat up all that the few gathered. Consequence, *no profit*. Second, the workers begin to lay eggs as soon as the queen leaves the hive, whether by swarming or otherwise, so that the combs are filled with a multitude of dwarf-drones, to the disadvantage of bees, combs, and owner. Fertile workers are always present with these bees. At times they sting fearfully; at other times they are nearly as peaceable as Italians. However, they will not venture an attack unless the hive is disturbed, as do the black bees. A colony of Syrian or Cyprian bees will let me stand an hour at a time right in front of their entrance, turning out for me, and not one offering to sting; while in less than two minutes a black colony will resent such impudence to the score of hundreds of stings, if you don't leave. The Cyprians, I dislike to part with, for they are really a good bee in all points but one; but that *one point* is altogether too sharp for me. Of all the bees to sting when provoked, this bee "beats all." My flesh fairly crawls as I write, to think how I have been stung by them. In opening a hive, smoke does no good, while the least mishap will, without warning, send hundreds of hissing, angry, biting, stinging bees all over you. They also have "a touch" of the laying-worker nuisance, but nothing like as bad as the Syrian. I still have a colony of Cyprians, which I expect to brimstone this fall. I have twice tried to find the queen this season, to supersede her, but have been stung so that I gave it up. Perhaps brimstone won't kill them; but I'll try it and see.

The Carniolans, so far as I have tried them, are a rather mixed race or only a very peaceable strain of the black bee. My trials of them agree exactly with what friends Root have said of them in late numbers of GLEANINGS. Some of the queens produce a hybrid progeny, while others give nothing but black bees. As to the "steel blue" color claimed for them, I will say that the same will be seen on a lot of black bees, just hatched, if held so the light strikes them just right. As far as I am concerned, I have no use for them. It is hardly necessary for me to say that the Italians (home bred) are my choice, and especially as I find them now, after we have passed through almost the poorest honey season we have ever had, at work on red clover, and storing honey from it in sections, while hybrids and other bees are scarcely getting a living. This one quality alone, of home-bred Italians working on red clover, would give them the preference over the other races, with me, had they not many other redeeming qualities besides. I can not help thinking that Ernest is mistaken in thinking that the superior working qualities he sees in imported stock is wholly due to the fact that they *are* imported. I believe that it is in the crossing which gives the great vigor. I have more imported stock in my yard than ever before; and I find that, from my best improved bees (done by judicious crossing) I have, and am likely to obtain, double the honey I shall from the imported. I also find that daughters of imported stock, crossed with my stock, stand much ahead of their mothers as to the gathering qualities of their worker progeny. This is the result given in this, the poorest of all seasons (with me) for 14 years.

Well, this article is already too long, and I have hardly got half through. With the editor's permission I will conclude it in the issue for Sept. 15.

Borodino, N. Y., July 31, 1886. G. M. DOOLITTLE.

By all means, friend D., give us the rest of your very valuable communication. I do not know how you could think we shouldn't care for your views on this most important subject. I believe our experience agrees with all you say, unless it be in regard to the progeny of our imported queens; and as honey-raising is not a specialty with us, you may be the nearest right. I am quite sure that a great improvement could be made by persistently rearing queens in colonies that give us the largest honey-yields.

"BEES AND BEE-KEEPING," AGAIN.

WHAT IS SALIVA AND ITS FUNCTIONS?

I HAVE read Prof. Cook's review of "Bees and Bee-Keeping" with pleasure, and I feel sure every reader of GLEANINGS will think more highly of him for the good-natured way in which, as the editor says, he "stands fire." It has been said, that Mr. Cheshire's criticisms show an unkind spirit toward Prof. Cook. I find he is quite as severe in criticising the works of other authors; and I think in no case is he too much so, provided he is correct as to his facts. If, on closer investigation, it be found that he is in error, it will be in order for those authors to handle him as vigorously as was recently done by the editor of the *British Bee Journal* on the subject of bacteria. There does not seem to be as much "gush" and "slopping over" amongst writers in the old country as we sometimes see on this side of the water.

Referring to the similarity of the digestive process in all animals, on page 58 of "Bees and Bee-Keeping," Mr. Cheshire says: "During the process of chewing, or mastication, glands, of which we, like the bees, have three pairs, pour into the mouth saliva, whose principal office is to chemically change some parts of our food, and notably starch, which, under its action, begins to be formed into sugar, one of the most soluble bodies furnished by the plant world."

Regarding this statement, Prof. Cook remarks as follows: "Here Mr. Cheshire makes a strange error in the statement that our saliva is wholly a digestive liquid, that it changes starch into sugar. It is well established, that our saliva is almost wholly mechanical in its function, and that the pancreatic juice digests the starch." Prof. Cook probably follows Dr. J. C. Dalton, Jr., who says: "The function of saliva is altogether a physical one. Its action is simply to moisten the food and facilitate its mastication, as well as to lubricate the triturated mass, and assist its passage down the œsophagus." Dr. Dalton refers to the investigations of leading French and German authors in support of his view; but their observations were made on the masticated food of some of the lower animals, in which cases no glucose was found. The results of these observations do not necessarily prove that Dr. Dalton is correct; because later investigations have shown that, "whilst the saliva of man and some few animals possesses the remarkable diastatic ferment, it is absent from the saliva of a majority of animals."

On the other hand, on page 141 of his Physiology, Prof. Huxley says: "The secretion of these salivary glands, mixed with that of the small glands of the mouth, constitute *saliva*—a fluid which, though thin and watery, contains a small quantity of animal matter called *ptyalin*, which has certain very peculiar properties. It does not act on proteid food-stuffs, nor upon fats; but if mixed with starch, and kept at a moderately warm temperature, it turns the starch into grape sugar. The importance of this operation becomes apparent when one reflects that starch is insoluble, and therefore, as such, is useless as a nutriment; while sugar is highly soluble, and readily oxidizable." And on page 154 he says: "The conversion of starch into sugar, which seems to be suspended wholly, or partially, so long as the food remains in the stomach, on account of the acidity of the chyme, is resumed as soon as the latter is neutralized, the pancreatic and intestine juices operating powerfully in this direction."

In his article on "Nutrition," in *Encyc. Brit.*, published in 1884, Prof. Gamgee says: "The process of mastication, besides triturating the food and mixing it with the alkaline saliva, permits it to become raised nearly to the body temperature, in which condition the dextrine and the starches readily fall a prey to the ptyalin, and begin to be converted into dextrine and maltose. This change is very rapidly effected—it begins instantly, if the starch is already boiled, so that, unless the food is "boiled," a considerable quantity of soluble dextrine and sugar is formed before the bolus is swallowed."

From the foregoing it will be seen that, although he disagrees with Dr. Dalton, Mr. Cheshire is in accord with some of the latest and best authorities of the day. S. CORNEIL.

Lindsay, Ont., Can., July 26, 1886.

Thank you, friend C.; but when doctors disagree in such matters, who shall decide? Unless some special reason shall make it very important to know the exact truth, I can not see why it matters very much after all, as to who is right and who is wrong.

A SUGGESTION IN REGARD TO HANDLING FOUL BROOD.

ALSO SOMETHING ABOUT THE NAMELESS BEE-DISEASE.

IN GLEANINGS for Aug. 1, 1886, page 610, you describe what is evidently foul brood. In burning the combs you did all right; but why starve the bees, when there is a better way? In my experience in bee-keeping of over 21 years, I have had to deal with foul brood four different times, either in my own yard or in the yards of some of my friends. I condemn the practice of starving the bees, as it makes them almost worthless after such treatment for future comb-building. I believe it is well understood, that bees must be *fat* to build comb to any extent. Put them in a box, and feed them; make them build comb for three or four days; feed them well; keep them fat; then put them on other combs or foundation, and they will be in condition to build combs and rear brood. Don't be afraid. The comb-building in the box uses up all the honey the bees may have carried with them from the foul-brood combs.

THAT BEE-DISEASE THAT HAS NO NAME.

Let me call your attention to GLEANINGS for October 1, 1885, pages 658 and 677. For several years, at times, I have seen those nervous, shiny-looking bees (made shiny by the other bees worrying them trying to get them out of the hive), but I have never known of any loss of whole colonies until the present season. In this locality the disease is quite prevalent, in some instances causing the loss of the entire swarm. Changing the queen does not stop the complaint. Sometimes a swarm afflicted with the disease will recover in a few days, and remain well, while others, after recovering the first time, will again be taken down with the same disease. I have used salt, a small handful, placed at the entrance of each hive, where the breath of the bees at night dissolves a portion of the salt, which the bees seem to like. With some swarms it seems to help them, curing them in a few days completely, while with others it seems to have no effect. I have in some instances seen from a pint to a quart of bees thrown out in 24 hours.

QUESTION.

What effect, if any, does this disease have on a swarm, that, having once had it, survives the winter? Does it follow that they will have the same disease the second year? Will some one who has had experience with this disease answer?

So far as my observation goes, the *brood* is not affected by the disease—at least it looks healthy.

QUESTION.

Is there not something which, if fed the bees, will be a positive cure? Is it not a nerve disease? Certainly the bees appear very nervous.

What of the honey season? So far as I know, there will not be one-fourth of an ordinary crop.

Fabius, N. Y., Aug. 2, 1886. H. D. MASON.

Friend M., I think very likely you are right about making bees build comb or build out sheets of foundation, instead of starving them. With us we can not afford to risk any thing on experiments. At present writing, Aug. 4, but one more colony has been found showing any trace of the disease.—In regard to the "nameless bee-disease," as it has been called, we can not answer your questions. There may possibly be some specific, if we knew just what it is; but I believe medical men tell us there are very few specifics that are certain in all cases. I have never noticed it in winter time, but have several times seen it appear as early as April.

THE HONEY SEASON IN THE MISSISSIPPI VALLEY.

CHILLED BROOD, AND HOW TO CLEAN FROM THE COMBS.

MR. EDITOR:—What is the matter with the bee-keepers adjacent to the Mississippi River, in Mississippi, Louisiana, and Arkansas? Are they still in the business, or are they so busy handling their honey crop that we see no notice of them in any of the bee-papers? or is it that their bees have done so little that they are ashamed to make known how little they have done? I think there should be some reports from some of the sections between Memphis and New Orleans, as this section can be classed as a large honey district. The failure of the crop in this region, it seems to me, ought to have some effect in stiffening the market. A large crop from California always bears down the market somewhat, and a good deal sometimes. Likewise a full crop in the Mississippi Valley has its effect. I think it well for the condition of the crop to be known for so large a region as the Mississippi-Valley district, for the effect it will have on the general market. Although so far we have in this locality almost a failure, yet we should be glad to have it known in all the markets that such is the case, for the tendency it would have to keep prices up. It should be our aim to keep prices up as well as we can, though we may not get the benefit of them for another year. We should not be jealous of those who happen to be successful this season. If it will help to raise the price of extracted honey to tell you that the honey yield in St. Charles Parish, La., has so far been exceedingly small, I shall be glad to inform you such is the case. If the whole district of the Mississippi Valley, from Memphis down, and probably from Cairo too, has not the same report to make, "exceedingly small," please let's hear from some of the big producers, and let them give quantity and number of hives, spring count, and see if the report is not "exceedingly small" compared with other years.

I began this season with 125 hives, in fine condition. Up to June 9th I extracted 26 lbs. per hive. I have extracted only about 10 gallons since. Swarming time here begins usually about April 15th. My 125 hives were in as fine shape as any bee-keeper could wish, when all at once we had a cold spell, and the brood chilled. Two hives in particular had 13 well-filled frames of brood, and a great many had 9, 10, and 11 frames filled with brood. Every one of my strongest hives was ruined. I waited till the latter part of June for them to clean out the combs and build up again, but they would not do it; so to get any benefit at all from those hives, I took their frames all out that had dead brood in, and took them to the extracting-room and uncapped them, and, putting the frames in the extractor, I made things hum. I could not spare the good brood scattered about here and there, because that bad brood had to come out, and the good had to come with it. I then put them back in the hives, and the bees cleaned them up; but they could not clean all of them well enough, for some of the fresh brood in those cleaned combs died. Now, it wasn't foul brood, because there were no sunken caps with pinholes in them, nor did they have that stench in the hives; but I tell you the air was thick with unpleasant perfumery when I was extracting those frames. I extracted over twenty hives, and threw out over ten gallons of the rotten, slimy stuff. They were thrown back so much by the operation that many of them dwindled down; and besides having no swarms, I have reduced my stock by uniting to 117 at present, and shall, as rapidly as I can, reduce them to about 100 hives. If any of the Pelican bee-keepers can boast of the wonders of Louisiana as a honey State for 1886, I am ready to read all such reports; but I should like affidavits to accompany reports of large yields. Louisiana has yielded enough rain water this season to supply the whole Union. When this section gets dry, the ground cracks open, and is as hard as a brick; and when it rains too much the ground gets tough and gummy, like rubber or glue.

May be next year we'll get a chance to astonish you. If we do, then you'll have to have a "Louisiana" column in which to chronicle big yields; but on off years like this one up to date, the Mississippi-Valley bee-keepers are conspicuous by what they don't report. 3—C. M. HIGGINS, 125—117.

Hahnville, St. Charles Par., La., Aug. 3, 1886.

FLORIDA.

AN ADVERSE REPORT FROM OUR OLD FRIEND W. S. HART.

HERE we are, arrived at the ordinary time for our surplus honey-flow of the season to begin to check up, and yet there are not, as far as I can learn, a dozen barrels of surplus honey in this "bee-belt," as it is often called. This season has certainly been an anomaly to the bee-keepers of this part of Florida. I do not care to give a full report of the season up to date just now, but will say that bees bred up very strong in March, where there was plenty of honey in the hive to go with what little was gathered in the field. It seemed as though they would turn honey into brood to almost any extent in proportion to the amount of the former that was provided them. There was considerable swarming during the late days of March and through April, although there was but very little honey coming in. Almost all swarms had to be fed at once; and if given uncapped brood they would construct queen cells on it and cast a swarm before any eggs were laid. I never saw swarms cast before, when so little honey was coming in. Instead of the usual dry weather through April we had a good deal of rain, and the drought commenced in May, about the time that the summer rains usually commence. It continued very dry until June 18th, when we had quite a shower. Since that it has rained almost every day, and is raining now. I do not think that any one here has ever seen more water in the "flat woods" and hammocks of this "coast section" than there is at present. The dry weather in May and June prevented all of our honey-producing plants and trees that usually come in then, and give us our early surplus, from doing much more than to provide for the wants of the brood.

The mangrove crop, as before stated, having been destroyed by the unprecedented cold of last winter, our only hope for a crop of white honey was based upon the cabbage palmetto. This tree was watched with much interest, as there has been considerable discussion as to its merits as a honey-producer, some claiming that most of last year's white-honey crop came from it, while others claim that they have never had a barrel of honey from the tree, as it produces only pollen. What makes it so difficult to decide this matter is the fact that both it and the mangrove are in bloom at the same time, and the bees are hard at work upon both, and at times honey is coming in quite rapidly when the bees seem to be working mostly on the palmetto, notwithstanding it is seldom that a bee found on its bloom has its sack half or even a third full of honey. Well, the tree is now past the prime of its bloom, which has been profuse, and there is almost no white honey in the hives; there is less brood than ever known before at this season; and although colonies that have been well cared for are mostly in fair shape, some have been lost through neglect, as many of our bee-keepers had to give their time to other work in order to bridge over the first and only season *not giving a paying crop* of honey to the skillful apiarist when prepared to receive it that I have ever known or heard of in this part of Florida.

The mangrove is sprouting out in fine shape from roots and lower trunks of the injured trees, and will probably give quite a crop of honey next year, and a full crop the year after. Don't put us in "Blasted Hopes," as our courage is good yet.

Hawks Park, Fla., July 29, 1886. W. S. Hart.

NOTES FROM ONE OF OUR FRIENDS IN SOUTH AFRICA.

THE POSSIBILITY OF SHIPPING QUEENS FROM THERE HERE.

MR. ROOT:—Your name is too well known in bee-circles to escape the notice of any bee-keeper, even one in South Africa, where bee-keeping has little or no status. I have been a bee-keeper over 25 years, 15 of which have been spent in this colony, in which, until very recently, I have lived almost wholly unenlightened as to the immense advance of bee-keeping during that interval. Of course, therefore, I have been a disciple of the old school, left to his own observations. Some of these are given in the transactions of the Naturalists' Society of this Province, a copy of which I take the liberty of sending you. Since its publication I have happily become acquainted with the *British Bee Journal*, etc., and with your most practical Gleanings, a copy of which is now before me. From these I have been impressed with the fact of the great demand for foreign varieties of bees, with a view of improving bee-strains. This has led me to draw the attention of the bee-world to the supreme excellence of the S. African breed, reference to which has been made more than once in the pages of the *B. B. J.*

From an advertisement in the latest issue of this journal, if you should see it, it will be gathered that Frank Stroud, my son, who has been recently engaged in the rearing of a large number of the best quality of queens, under my own immediate supervision, is prepared to forward such African queen-bees, pure bred, as may be required, guaranteeing their fertility; or nuclei in working condition. The price mentioned is calculated for a single queen only, though where a large number is sent, the cost will be very much less.

S. African bees are a mingled race, probably, of the old Egyptian and brown bee, with a dash of a grayer variety; but they are inimitable workers, and by a long way superior in every respect to the European bee of my earlier experience. The winters here are naturally not quite so severe as in Great Britain, for example; but the droughts here at times are terrible; and how bees live through them, much less increase and multiply, and gather honey nothwithstanding, is indeed a marvel. When, however, bee-forage is about, their energy and activity are equally remarkable, early and late, all the year round. They have no diseases, and are, I should say, an improvement even upon the Ligurians if only in this one particular.

As you are a large importer and grower of foreign bees, and your influence widely felt, I hasten to bring these facts to your notice, believing that an acquaintance with the "Africans" referred to would immensely benefit all who are interested in bee culture and honey growth. I should be glad of any suggestions you might be pleased to offer as to the best means of transporting bees from this quarter to you, the kind of cage you would recommend, etc. J. W. Stroud, M. D.

Port Elizabeth, Algoa Bay, Cape Colony, S. Africa.

Friend S., we are very much pleased indeed to get this report from so far away. I presume your son Frank is working with the aid of movable-frame hives, and all modern implements. We should be very glad to know how much honey you get, in an average season, from a colony of these South-African bees. I think there is hardly any possibility of sending bees by mail this great distance; but perhaps you might send them to Australia, or some other point where Italians are kept, so that they could be compared side by side. Doubtless some of the readers of our journal will be glad to correspond with you in regard to the matter; and if you can not send us any live bees by mail, please send us a few dead ones; or, better still, fill some of the workers with honey, and then put them in a very small vial of alcohol, plugging this up in a wooden block for safety. We will try mailing you a block already prepared, as it may save you some time and trouble.

WEIGHING QUEENS' EGGS.

Can a Queen Lay Eggs Enough in a Single Day to Overbalance Her Own Weight?

PROF. COOK PROVES, BY WEIGHING THE EGGS AND WEIGHING THE QUEEN, THAT SHE MAY.

DEAR MR. EDITOR:—As I wrote you, we are carefully investigating the laying powers of a queen, and we find that the number of eggs that the queen lays per day is no more surprising than the quantity by weight. Mr. Cheshire states that the queen in spring "will turn the scales at three grains—feeding adding fully half a grain more." He says that 90,000 eggs weigh 270 grains; hence 3000, the daily product of a good queen, would weigh nine grains, which would be nearly three times the queen's weight.

You expressed doubt, Mr. Editor, and no wonder. I have found Nature's laboratory so full of wonders that I have learned to doubt, or, at least, deny, no statement like this till investigation shows it to be unfounded. My students and I took a queen, ¾ Syrian and ¼ Carniolan, or about that, and carefully weighed her on scales that weigh to one ten-thousandth of a gram. She was weighed by two separate parties, and on different scales, and weighed .2299 grams. Multiply this by 15.431 and we find her weight 3.548 grains. The queen was carefully lifted from the comb while laying. We see, then, that this queen weighed a little more than one-fifth of a gram, or a little more than 3½ grains.

We next weighed a piece of comb full of eggs, which had been carefully dusted, both by blowing and by use of brush. It was laid on a smooth dusted board, and handled by metallic forceps. I then carefully removed 20 eggs, which were carefully weighed. The weight was .0026 of a gram. Multiply this by 150, and we get the weight of 3000 eggs, the number that a queen will lay in a day at this season. I then removed 40 more eggs, and again weighed the comb. By subtracting this weight of the comb from the original weight, we found the weight of 60 eggs, which agreed almost with the weight as determined by weighing the 20 eggs previously. Thus the weight of 3000 eggs is .39 of a gram, which, reduced to grains, gives six grains. Thus it appears that, in this case, the queen may lay 1.7 times her own weight. Unless the eggs vary in weight—and why should they not?—Cheshire has got the eggs too heavy by ½ their weight.

We shall repeat this experiment with several queens and their eggs. We shall also weigh eggs just laid, and those just ready to hatch, and compare weights.

Now, Mr. Editor, you must remember that your name is Amos, not Thomas, and never doubt again.

A. J. COOK.

Agricultural College, Mich., July 21, 1886.

It would appear, friend Cook, that Frank Cheshire had already made the experiment when I wrote you. Of this I was not aware, for we had not yet received the complete numbers comprising Volume I. of his book, and in this case I shall have to beg his pardon and yours also. Yes, I will try to remember that my name is Amos and not Thomas. It is not often that I feel like demanding so much proof; but I hope I shall be ready to accept truth when it is made so plain as you make it. When you talk about your scales that will weigh queens and queens' eggs, I confess I begin to have a good deal of reverence for the men who can make and use such instruments. Then it is indeed true, that, bound up in the small body of a queen, or mother-bee, are the necessary arrangements and vital forces to take the concentrated food furnished by the workers, and convert it into several thousand of these tiny eggs, each one having a separate life-giving principle bound up within it, each one incased in a perfect pearly shell of its own, and in one short 24 hours she may produce these finished eggs in quantities numbering thousands, and in weight two or three times that of her own body, even when said body is full of eggs. I feel that, if I have been a doubting Thomas, I am now, with the facts you give, ready to say with doubting Thomas, in words expressive of unquestioning faith, "My Lord and my God;" and, "How marvelous are thy works!"

AN A B C SCHOLAR'S EXPERIENCE.

MOTHS, WIDE FRAMES OR CRATES, STINGS, ETC.

MY success with bees, all things considered, has been good. When I began I knew only that bees make honey, and sting, and that there are workers, drones, and a queen. For the first twelve months I had a mortal horror of the moths, nor did I get over it until Root, in GLEANINGS, declared that he would not give 25 cents to have the whole tribe of moths abolished. If the moths have ever harmed my bees, I have seen no evidence of it. Moths do ruin combs that are off the hives, and left carelessly exposed.

WIDE FRAMES OR CRATES.

Last year I used section boxes and separators; but it was such a job to get the wide frames off the hives, that this year I discarded the wide frames and section boxes, substituting for them ordinary frames with fdn. starters, ¾ or 1 inch wide. I am much pleased with the change. However, there has been a good deal of drone comb and brood in the honey-frames. One of your correspondents affirms that a remedy for this is to fill the frames with fdn. Is he right? Can this be depended on? If it can I will fill every honey-frame, next season, with fdn. I would have done it this season to help the bees along had not another of your correspondents affirmed that bees get along with their comb-building just as fast without as with fdn. His experiments seemed to have been conducted carefully and fairly. Please state how this is. Foundation costs enough to make one want to know the real facts about it. In the use of starters I found out the importance of having the starters go very near the uprights of the frames. Where I let them extend only within an inch of the uprights, the bees would build straight to that point and then go crooked, clear over to an adjoining comb. At first I put all my colonies on the ground; that is, on half-bricks laid flat under each corner, but the spiders and ants bothered so much I put legs to all my bottom-boards, and I am much pleased with the change.

KEROSENE FOR ANTS.

Only a few weeks ago one of my colonies was invaded by ants. All I did was to throw down my inclined alighting-board, and pour a little kerosene on the legs of the bottom-board. Had the hive been on or very near the ground, the ants would not have desisted until by some means they were thoroughly exterminated.

SHAKING INSTEAD OF BRUSHING THE BEES OFF.

A word about my experience as to stings: The veil and gloves made me feel so muffled and cramped that I have generally done without them, preferring a few stings to the cramped feelings of working under cover. But about six weeks ago, in taking the honey from a hive I was so unmercifully stung that I had to walk off and get both veil and gloves. Since then I have taken honey from hive after hive without one single sting, and without the use of either veil or gloves. The great difference in the behavior of the bees is not due to atmospheric conditions, scarcity of flowers, or any thing else but my method of doing the job. When I was so badly stung I used a brush to get the bees off the frames of honey. I never brush them off now, but shake them off by a sudden motion of the hands and arms, as recommended by you. Tell your beginners that bees do mind being brushed off the combs, but they do not mind being shaken off. Of course, there should be an inclined pathway to the hive in front, and on this or in front of the hive the shaking should be done, so they can readily crawl in. They behave very much as they do when a swarm or a dipperful from a swarm is poured in front of the hive. This may seem a very small matter to experienced bee-keepers; but the difference between twenty stings and no stings at each hive is a considerable thing. Besides, *every* bee is easily shaken off without any violent use of the muscles. My bees did so poorly at side-storing that I shut up all that part of the lower Simplicity hives devoted to wide frames and section boxes.

What do you and your correspondents think of fdn. with wires molded into it? What is the additional cost, and is it worth one's while to adopt it? JOSEPHO.

Tuscaloosa, Ala., June 28, 1886.

Friend J., there is quite a difference of opinion in regard to wide frames or crates. Dr. C. C. Miller says, on page 35 of his book, "A Year Among the Bees:"

> An objection to the use I made of wide frames was the bits of comb and honey between the bottoms of these frames and the tops of the brood-frames. This might be remedied by using the Heddon skeleton honey-board. Another objection was the great amount of labor entailed. For one not over strong it made a great deal of heavy lifting. Yet I secured some good crops of honey by it, never in more satisfactory shape, and I am not sure whether I can do any better by any other system, if I do not take into account the item of labor.

This might make it a question of circumstances with the bee-keeper. Foundation will surely prevent having your frames filled with drone-comb. As to whether it pays better for comb-honey to let the bees build natural comb in the brood-frames or put it in fdn., remains undecided. Your suggestion in regard to having the foundation go clear up against the uprights of the brood-combs is an excellent one.—Kerosene is probably a good remedy for ants.—More than one of our new pupils have made the same discovery you have when they undertook to brush bees, especially if the brush was a stiff one—like a stiff broom, for instance. The brushes we advertise for the purpose irritate the bees little, if any.—In regard to foundation with wires imbedded, the way it is made by Van Deusen & Sons, it answers a good purpose without question; but I believe most of the friends prefer the plan laid down in our price list and A B C book.

FEATHERING—GETTING QUILLS.

MRS. CULP'S SCHOLAR, AND HOW HE HAS PROGRESSED.

THE first article I ever wrote for a bee-journal appeared in GLEANINGS, June 15, and was entitled, "Just Hatched." In your appended note you say, "Don't fail to tell us more about it." With hearty thanks for your kindness, I comply with your request.

Six weeks ago I knew nothing of apiculture nor of bee-literature, having never read with care a single article on the subject. Since then I have gone through A B C and Cook, reading nearly every thing in both, and re-reading much of their contents; and I have almost devoured several back numbers of GLEANINGS, handed me by a friend. I am greatly pleased with GLEANINGS in every respect. I find in it no bitterness against other journals on apiculture, and very little *hatefulness* between its contributors. It does not attempt to snub the Almighty, nor does it treat religion as something to be shunned, if we would be safe. Altogether, I feel as though I had got into good company.

I have four colonies, all from Mrs. Culp's apiary, two of them quite recently, and they are getting in lots of good work. They have received 72 new frames filled with foundation, the most of which is *done up;* and they have done some work in sections besides. I have formed one nucleus, which affords me great pleasure, and opportunity for observation and study. I hope to grow this nucleus into a strong colony before fall.

I have visited several small apiaries, and two of some note, and I find this a fruitful practice for gaining knowledge. How I should love to visit "The Home of the Honey-Bees"!

I have assisted in almost all kinds of apiarian work. I have beheaded drones, clipped queens, plucked queen-cells, have had queens hatch in my hands, taken queens from hives, introduced queens, hived swarms, transferred colonies, extracted honey, etc.

In the last few weeks I have put together about 300 frames, and all these I have wired; and about one-third of them I perforated with a brad-awl, that they might be wired. I am greatly in favor of wired frames. To prevent sagging I ordered tin strips 3½ by ¼ inch, which I nailed over the top-bar and down on to the end-bars. I have put $25.00 worth of comb foundation into frames for myself and others. Comb foundation is a great invention, and its use should become universal, I think. It pays to put it in well. I first varnish one side of the comb-guide with melted wax. This wax holds the foundation much better than the new wood will; and after the foundation is in I drop melted wax on its upper edge in four or five places, and especially at each upper corner. All this takes time—a little time; but it is the stitch that saves nine.

It does not do well, I find, to hive bees at swarming on frames of comb foundation, as they are so warm then, through excitement, that they melt the wax of which the foundation is made. I still like the chaff hive; but I believe the extra box for the upper chamber would often be an advantage. I think I shall try it and see. A box, made two sides of pine and the other two of heavy tin or sheet iron, would have room in the chamber, and yet allow the frames to run across the lower ones as they do.

She whom my children call "ma" is delighted with the bees. She sends many thanks for your kind remembrance of her. J. S. RICKETTS.

Hilliard, O., July 6, 1886.

Friend R., your suggestion of making an upper story to set inside of the upper story of the chaff hive, of part wood and part tin, is ingenious, but there would be one trouble with it: It would not be conveniently interchangeable with the regular Simplicity hives. —We are glad to note your enthusiasm and zeal, and we hope it may bear good fruit. We have labored hard to see that nothing goes into GLEANINGS reflecting on any other bee-journal; and we mean to try still harder to let nothing uncourteous be seen on its pages toward anybody. Of course, we expect to expose frauds when nothing but exposure will stop them; but we mean to do even this in a kindly spirit.

HOW SOME A B C SCHOLARS SUCCEEDED.

BRINGING STARVED BEES TO LIFE, ETC.

WE had a swarm of bees come to us about the middle of July, 1882. Mr. L. went to one of the neighbors and borrowed a box hive, and the hired man hived them. The hive was glassed on one side, so that, by opening a wooden door, we could look in and see them work, and we watched them very closely.

The basswood yield was very good that year, and they made honey enough to winter on. We put them in the cellar in the fall, and every warm spell through the winter we would go and listen to see if they were living; and sometimes, if we did not hear them, we would jar the hive, we were so anxious to know whether they were still alive. But they survived all such hardships.

Mr. L. sent for an A B C book in the spring. About the tenth of April he put the bees out of doors; and during apple-tree bloom he had them transferred to a Langstroth hive. The tenth of June they sent out a swarm, and it clustered on the body of a tree; and if we were a little nervous over the first swarm, you will pardon us; but with milk-pan in one hand and wing in the other, Mr. L. soon had them in the hive. The next swarm was not so easily managed, as they came out the second time, and we did not know what to make of that, so we went to the A B C book and found that was a freak of the young queen. After coming out two or three times they settled down in their new home.

The third swarm we sent back. The first swarm made 44 lbs. of nice section honey. Mr. P., who keeps 90 swarms, said it was the nicest honey he ever saw. Mr. L. bought two colonies in the fall for $5.00 each. The next spring he lost his original swarm. He had no smoker, so he could not look at them. He thought he would wait and see whether his bees lived through or not before he bought one. We watched them to see if they came out on all warm days. One day we noticed that that colony did not come out when the others did, and there was another colony we could not see any flying from, so I went out there and I saw two or three bees at the entrance that could just crawl. When Mr. L. came to the house I told him they were starving to death, and he opened the hive and found a good many of them on the bottom of the hive, and those on the frames could only flutter their wings a little. He said he did not think we could do any thing for them; but he brought them in and put some strained honey in the comb, and in two hours they were flying. The other colony were all dead. Mr. L. got a smoker in the spring. That year we had no new swarms, but had 397 lbs. of honey. One of the colonies bought made 123 lbs. Last year the four colonies averaged 83 lbs. apiece, and increased to nine; this year to 20. We take GLEANINGS, and like it very much.

Harford, Pa., July 7, 1886. MRS. H. M. LINDSY.

LEAF-HOPPERS.

Do They Really Secrete Honey?

PROF. COOK GIVES US SOME INTERESTING FACTS IN REGARD TO THIS FAMILY.

FRIEND ROOT:—We send you, by to-day's mail, some insects which we find in great quantity, producing a sweet substance we suppose to be honey-dew. They seem to hatch on hemp, and osage orange. When first seen they are white and linty until they get their wings. Bees are working all hours in the day on this substance. Can you tell the name of the insect, or are they a common thing? I never saw such before this year. Z. G. COOLEY.

Norwalk, Iowa, July 13, 1886.

Prof. Cook replies in regard to the above as follows:—

These are not plant, or scale lice, but are leaf-hoppers, which are readily known by their broad heads, prominent eyes, and sharp-crested thorax. The larvæ of many species secrete a liquid in which they live and feed. This liquid contains air-bubbles, and looks not unlike freshly ejected spittle from a clean mouth. These leaf-hoppers are so called, because they live or feed on leaves, and when disturbed they hop away. One, the grape-leaf hopper, is often a serious pest to the vine which gives it its name. Though these are not plant, or bark lice, they do belong to the same order—*Hemiptera*, or bugs, as can be seen by the prominent beak or strong sucking-tube, which is bent under the body when not in use. You, Mr. Editor and others, have noticed the frothy liquid surrounding these larval leaf-hoppers on an evergreen-leaf or grass-blade. I have never discovered that these secrete a nectar, nor heard of it before. I am led to wonder if the same plants did not harbor and provision a colony of plant lice which supplied the sweet. The matter should be sharply looked into. If these leaf-hoppers do secrete nectar, it is a new and interesting point. A. J. COOK,

Agricultural College, Mich., July 20, 1886.

ANOTHER WAY FOR KEEPING THE QUEEN OUT OF THE SURPLUS.

ONE METHOD OF PREVENTING AFTER-SWARMS.

WE have always had some difficulty from our queens going into the surplus-apartment and occupying a part of the combs. If we are working for section honey it is not only provoking, but ruinous to the honey-crop, to have the queen lay eggs in the sections, where we want nice white-clover honey; and it is equally provoking, if less ruinous, when working for extracted honey, to find combs that should be solid with honey, half filled with brood. Out of many methods tried, the following is the only perfectly successful one with us:

We take a piece of perforated zinc, just long enough to fit in the hive lengthwise and 18 inches wide. We bend this zinc in the shape of an L, thus ┐, the long arm of the L just reaching from the top of the brood-frames to the bottom of the hive. This is now put between the 4th and 5th frame, leaving four frames on one side and six on the other, when the short arm of the L will just cover the six frames (of course before putting on the zinc we see that the queen is on one of the six inclosed frames). Now, if the zinc has been carefully fitted, the queen is securely caged upon these six frames. If the queen is inclined to come out at the entrance, and go around, a strip of perforated zinc may be tacked at the entrance, in front of the six inclosed frames. We have not found the latter necessary, only where we wished to prevent swarming; if natural swarming is desired, the zinc in front of the inclosed frames must be removed or the queen could not leave the hive.

The benefits obtained by thus caging the queen upon six frames are, 1. We are not troubled with brood where we want surplus honey; 2. We are not troubled with honey where we want brood; the bees empty almost every cell from the inclosed frames, and they are filled with brood from top to bottom; 3. The four frames upon the other side of the zinc division are filled solid with honey, and make grand combs for winter; 4. The swarming business is absolutely under our control.

When a swarm issues we lift off the surplus, set aside the brood-chamber (lower story), put another in its place filled with empty combs, if we have them; if not, with wired frames having a strip of foundation 1½ inches wide attached to the top-bar. We usually take out one frame from the old brood-chamber and put in the new. The surplus is put on this new brood-chamber upon the old stand, and the swarm hived in just the same location it came from, while the old brood chamber is removed to a new location.

The benefits derived from this method are, so far as my observation goes, 1. The new swarm goes to work in the surplus at once, with all the energy and stimulus which swarming gives; 2. They are in the humor for comb-building; and if we want nice straight worker-comb built, we can get it done rapidly in this way; 3. A large number of the old bees from the old brood-chamber (now on a new stand) will return to the new swarm. The colony in the old brood-chamber on the new stand will be so weakened that, when the young queens hatch, there will be no swarming fever, and we have no after-swarms. G. C. JOHNSON.

Fountain City, Ind., July 7, 1886.

TENNESSEE AS A HONEY STATE.

THE SCENERY FROM LOOKOUT MOUNTAIN.

OUR winters are so mild that we can winter with perfect safety on the summer stands. This I consider a great advantage over the Northern States; and could bees be wintered there with as much assurance that they would come through all right as there is here, I do not think that the wintering problem would be discussed as much as it is; still I believe it requires one-third more stores for a colony to winter on in this country than it does in our extreme Northern States. The reason of this is, that they rear more brood here before there is any honey to be gathered than they do in the North. It is not uncommon for bees to have four full frames of brood by the first of March, and for them to throw off swarms the fore part of April.

We do not have any spring dwindling here. Our colonies seem to be always strong, and ready for work when there is any thing for them to do.

The first honey that comes in in the spring is from the peach bloom. This is generally from the 15th to the 25th of March. After this comes other fruit bloom, and some other wild flowers and forest blooms. This keeps the bees in fine shape until the first of May; then comes the poplar bloom, and at this time the bees are in the surplus-boxes doing fine work, as there are large quantities of poplar here. About May 10th the white clover commences to bloom, and continues to bloom for six weeks. We have not as much white clover here as you have in the North, but in certain localities there is an abundance of it here. Before this is out of bloom, the basswood, chestnut, and persimmon bloom; and while they are still yielding honey, the famous sourwood puts forth its bloom. This produces well, and the sourwood honey is very fine, except that it is rather thin when first gathered. The sourwood bloom lasts until about July 10th, and from then until July 21st there is not much for bees to work on. Now comes in the sumac, and the bees are doing finely on it, considering the cool nights we are having. During the whole month of August we have plenty of pea bloom (the cow, or clay pea). There are large fields of peas sown in this section of country. We have considerable goldenrod and fall aster. There are a great many honey-plants that I have not spoken of, and some of them are of no little importance. Among them are the different kinds of mints; also spider plant and black locust. We have our bees located in a little valley, the Sequatchie. This is between two mountains — the Cumberland and Walden Ridge. Our bees have access to the valley, and the sides and the top of the mountains for some distance back.

As Ernest asked, in last GLEANINGS, in regard to the honey-flow being prolonged where bees had access to both the valley and the mountain, I will say it is greatly an advantage with some bloom, such as chestnut, sourwood, and poplar; and if there is no bad weather to stop the bees off they will follow it, even for several miles on the top of the mountain; but I believe he was referring more particularly to white clover. I would say that there is but little if any white clover on the mountains in this country. Friend Lawson is located right at the point of Lookout Mountain, and right where the "Battle above the Clouds" was fought. The breastworks that were thrown up at that time can be seen in his yard, and it is here that one can command a full view of the city of Chattanooga, or take a telescope and look into seven States; and here with the naked eye you can see the Tennessee River as it winds around the city of Chattanooga to the foot of the mountain, then back, making what is called the "Moccasin Bend."

The climate here is good. The summers are warm, but we do not have the extremely hot weather that you have in the North. It is not often that the mercury is above 90° or below zero.

Some may think this is rather flattering for the State of Tennessee; but let me say, that this land is not always blooming in honey; for this summer has been a poor one for those keeping bees as well as for the farmers; for it commenced to rain on the 14th day of May, and there were only seven days from that time until the 11th of July but that it rained. But so much rain is not a common thing here, as it is generally dry through June and July.

Pikeville, Tenn., July 24, 1886. E. C. KEPNER.

NOTES FROM THE BANNER APIARY.

No. 80.

NON-USE OF FOUNDATION.

YOU say, friend Root, that you do not quite "catch on" in regard to there being no difference whether comb or extracted is raised, when allowing swarms to build their own combs in the brood-nest; but you begin to suspect that bees will store more honey when allowed to indulge in their passion for comb-building.

The point is this: *If* more honey will be secured by allowing the bees to build combs in the brood-chamber, it makes no difference in what *form* the honey is taken in the super. I do not think the first sentence of my little item on page 563 is very clear. I meant to say that I had worked new swarms for extracted honey, and that I considered the advantage gained by allowing them to build their brood-combs was as great as in working for comb honey; that really I could see no difference.

I do think that bees work with greater zest when building comb. This zest could be secured by allowing the bees to build combs in the supers instead of the brood-nest; in fact, this has been suggested by some of my correspondents. This course would defeat the main object of withholding combs or fdn. from the brood-nest; viz., that of getting the honey in the supers, and the brood-chamber full of brood. I know Mr. Jones says he is convinced that combs are an advantage in the raising of extracted honey. I agree with Mr. Jones, and I *think* he will agree with me in thinking that the combs should be in a *super*, with a queen-excluder between them and the brood-nest, and the latter free from combs or fdn., except enough for starters.

Some of those who have been trying this plan of allowing new swarms to build their own combs in the brood-chamber have been troubled by getting too much drone-comb. I think the trouble can be traced to one of three things; viz., too large brood-chamber, too old a queen, or in not putting on the supers *at the time of hiving*. Have the brood-chamber of a capacity not larger than five or six L. frames; put starters of fdn. about ½ inch wide in the frames (they can be put in with a Parker fdn. fastener), put on a queen-excluding honey-board, then a super, either for comb or extracted honey, and have the frames or sections in the super filled with fdn.; or, better still, combs. I take the case of sections from the old hive at the time of swarming, and put it on the new hive, and in 20 minutes the bees are back at work again—working with new energy too—in the very sections that they so eagerly deserted a few minutes before.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich., July 26, 1886.

INVERTING VERSUS ALTERNATING OF HIVES.

THE EFFECT OF INVERTING QUEEN-CELLS AT DIFFERENT AGES.

ARE we not getting somewhat over-enthusiastic on inverting, and prematurely claiming for it what, in exceptional cases, appeared very favorable; but, upon applying it practically, would give a greater number of failures? And are we not losing sight of other arrangements that give us the same results with less labor? For instance, it is claimed by some that inverting a hive or its combs would destroy the queen-cells, and consequently prevent swarming. As I have experimented considerably on that subject, I will give the result of my observation.

About 15 years ago a friend purchased nearly all the bees in this county, something over 100 colonies. These I transferred for him into movable-comb hives. Some of these colonies had queen-cells in various stages of development; but as the colonies were to be supplied ere long with Italian queens, no special attention was paid to their position in the new hive; and as most of the combs fitted best into the frames in an inverted position many were so placed in the hive. Upon examination, shortly after, it was discovered that some of the queen-larvæ were dead, and nearly dried up in the cells, whilst some matured, point of cell upward, as though its position had never been changed. This gave me cause for investigation; and since that time I have conducted numerous experiments; and since the subject of inversion has been agitated, these experiments have been quite extensive, and I have arrived at the following conclusion:

During the entire sixteen days required to mature a queen from the time the egg is laid, there is but a single day when the queen-larvæ of some of the cells may be destroyed by inverting them. The egg remains unchanged until the fourth day, when the egg hatches and the larvæ feed for five days. During this time it is curled up in the cell, somewhat like a ring, and no inverting will destroy it during that time. But now comes the critical time. The bees begin to cap the cell, the larva straightens up lengthwise of the cell and spins her cocoon, occupying one day. If the queen-cell was built in a horizontal position as they frequently are, no inversion will destroy the embryo queen; but if, on the contrary, the queen-cell is in a vertical position, and is inverted during the day that she assumes a straightened-out shape, and spinning her cocoon, and is left in this inverted position for 12 hours, the embryo queen dies; but after a queen has spun her cocoon the cell may be placed in any position without injury—a fact made known to the fraternity when friend Root taught us the use of the lamp-nursery. If a queen-cell is inverted before this time, the queen seems to remain in the base of the vertical cell, she herself retaining a horizontal position, and hatches as a stunted, dwarfed specimen.

Now, what effect, practically, has the occasional destruction of an embryo queen as a preventive of swarming? The natural swarm issues on the very day, weather permitting, that inverting of a *vertical* cell would destroy its inmate; and should this inverting perchance be done at the right hour, the swarming fever has so far taken possession of the bees that usually the swarm issues, notwithstanding the injured embryo queen; and, further, there are usually several queen-cells of varying ages; and if inverting is practiced before the time indicated, a dwarfed queen for the future mother of the colony is the result—an injury rather than a benefit; and this injury may result to us, if we invert for any other purpose, without knowing the condition of each comb inverted.

The advice of Ernest, on page 551, is indeed timely. Some combs may be all kinked and doubled up by inverting, and I quite agree with him on the unsightly appearance of combs whose lower edges are imperfectly built out, occupying space that should be solid with brood; and to fill this seems about the main (and I might say the *only* practical) cause for inverting. Yet this and many other profitable manipulations can be accomplished without inverting, and that is, *alternating*. A hive constructed so that its brood-chamber may be horizontally divided —that is, one half placed on top of the lower half, and arranged to interchange, furnishes all the desired advantages. If the lower edges of the combs are not built solid to the bottom-bar, simply place the lower half on top of the upper half (alternate). The lower edges are now near the middle, and are soon built solid, and filled with brood, not honey, as is usually the case when inverted.

I would not advise discarding our present hives *at once*, by any means; but this is a progressive age, and we will sooner or later adopt more or less of the alternating principle, as hundreds have already done in their surplus-honey arrangements. It reduces the time required to manipulate such a hive about one-half. We simply have to alternate occasionally to equalize the brood; make artificial swarms by removing one case with bees, brood and all. When honey-cases are added we alternate, bringing the center of the brood-nest directly under the sections; and any honey that may be in the brood-chamber is thus brought down below the main portion of the brood from where the bees remove it; and as the top of the brood-chamber is filled with brood it is deposited in the sections.

Right here is an important point over inverting: If a comb is inverted, its *empty* edge is uppermost, and the honey removed from below is stored to some extent in this empty comb, instead of in the sections; and the empty combs, thus inverted, with the additional space between brood-comb and section case, furnishes no special inducement to enter the surplus-chamber; whilst by the alternating plan, the solid brood is brought up close to the sections.

Seventeen years ago I constructed and used quite a number of these hives. The ends of the frames were close fitting to each other, standing on metal strips, all held in place by a wedge; but in later years I have used them with closed, as well as with separated suspended frames, and am so using them to-day; and after carefully conducted experiments with both styles of frames, I greatly prefer the suspended frames, on account of the lateral adjustment; and although both styles can be inverted with their cases, and I have so used them by way of experiment, I can not find any additional merits from inverting, as alternating accomplishes all that is practically valuable in inverting.

Coburg, Iowa. E. KRETCHMER.

DR. BEAL'S WILD GARDEN AT THE MICH. AGRICULTURAL COLLEGE.

ALSO SOMETHING ABOUT THE HONEY-PLANTS BEING TESTED THERE.

AMONG the many excellent things accomplished by Dr. Beal at this College is the "Wild Garden," so called, not because things are allowed to run wild in it, but because the natural herbs and shrubs are there arranged in wards so as to show the natural orders. This is in a ravine; and in the dark shades along the rocky bank are seen the graceful ferns, while in the ponds are the various aquatic plants, many of which, as the pond-lilies and the American and Egyptian lotuses, are most beautiful. Now, friend Root, how I should like to have you with me as I take my daily stroll through this, one of the most lovely places at this College! Oh! but wouldn't you enjoy it? Of late I have been especially interested in some of the honey-plants. Two of the mints are crowded with bees from dawn till nightfall, and by their superior excellence may well make catnip and motherwort hide their respective heads. I doubt if even the horsemint of Texas would more than rival these plants. They both belong to the same genus as does catnip. One is *Nepeta mussini*, and the other *Nepeta nuda*. Another plant, *Eryngium planum*, is a marvel. For weeks it has been thronged with bees. It looks some like the Chapman plant, of which I have written you; that is, the flowers are in balls; but, unlike the Chapman plant, are not very showy. To look at this plant casually we would think it a composite or relative of the teasel, though in fact it is related to neither one, but belongs to the parsley family, which fact would never be suspected without close study. I shall gather seeds, and expect to rival, though not in beauty, the Chapman plant. The two will look well upon one bed together. *Eryngium yuccæfolium*, butter-snake root, an American plant of the same genus, is also an excellent honey-plant, or is so reputed.

A little way from this is the teasel. This looks much like the Chapman plant, though it is of a different family. The bees are wild about it. Did you ever notice the connate-opposite leaves, which form a cup about the stem, and hold sometimes half a pint of water? We have had no rain here for weeks, and yet these cups from Nature's own hand are full of water, and the water is full of decaying insects which have been entrapped, and are now fertilizing the plants. Gray says these cups are often full of rain water; but it can not be rain water. The water must have come from the plant, or they would have dried up long ago.

Another plant, the white verbena, is a great favorite with the bees. This is *Verbena verticifolia*, and is much better, I think, than the common place *Vervain verbena hastata*. The various sunflowers are also fairly alive with the bees. The bees work on these, both for pollen and honey. I have often seen bees loaded with pollen, sipping the nectar. Poor fellows! how tired they must get to thus go doubly loaded! I have seen the poor bees drop to the earth, and rest for quite a time, then rise and slowly make for their hives. I have often seen them also gather pollen from two species of these sunflowers during the same trip. Is not the old notion, that bees visit only one species of flowers during a single trip to the fields, due rather to the fact that flowers "of a feather flock together," than to any special option of the bees?

I should like to discuss many others of these interesting plants, but will wait. In the meantime I give you, my good friend, a most hearty invitation to come and see that the half is not yet told.

A. J. COOK.

Agricultural College, Mich., July 23, 1886.

Many thanks, friend Cook, for your kind invitation, and I may accept it pretty soon. We missed you sadly at our recent meeting at friend Chapman's, which I have mentioned elsewhere. Now please have your pupils tie a little paper bag over those heads of teasel and balls of bloom on other plants, keeping the bees away for 24 or 48 hours, and then see what you find. Where bees are allowed to work on the flowers from morning till night, we have no opportunity of getting any knowledge at all of the quantity of honey the flowers secrete. What you say about the teasel is new to me. I confess I did not know that it secretes water in the way you mention, although we have plenty of wild teasels growing round all about us. I am of the opinion, that bees rather prefer to work on one kind of blossoms, for I have often noticed them in the clover-field where red and white clover were about equally divided. Some of the bees visited the red-clover heads exclusively, and others just as exclusively the white-clover heads, and I never saw a bee go from white to red clover, or *vice versa*, that I know of.

HONEY AS FOOD AND DRINK.

HONEY GINGER-SNAPS.

THE following recipe my wife has used for years with good results: One cup of brown sugar, one cup of extracted honey, a tablespoonful of ground ginger, a cup of melted butter or meat fryings, a teaspoonful of saleratus dissolved in a little hot water, and as much wheat flour as can possibly be stirred in (but not kneaded). Pinch off pieces about the size of a large marble, and roll between the hands. Leave spaces between them in the pan to allow for spreading. Bake in a moderate oven till of a nice brown, and leave in the pan till they are "snappy." In cold weather the materials should be warmed before stirring in the flour. They are perhaps a little tougher than if made of molasses, but good "all the same." They will "keep," if you keep them off the table and out of reach of the children.

A CHEAP HARVEST DRINK FOR BEE-KEEPERS.

When I was a boy my mother used to make a drink for us to carry into the hay and harvest field that we called "ginger beer." It was made of water with sufficient molasses, vinegar, and ginger to make it taste agreeable. Since I have been keeping bees I furnish my men with a similar drink for hot weather.

RECIPE.

One teacupful of extracted honey, one teacupful of vinegar (made also from honey), a teaspoonful of ground ginger and half a gallon of water. It can be used immediately, or will be good all day. I have never had a man or boy who did not prefer this to water. The condiments can be varied to suit the taste. The ginger is a good tonic, and the stomach is not so likely to get "sick" as when water alone is drank. They are not so liable to overload the stomach. When taken into the field for half a day, water gets warm and sickish—not so this drink. It is good all day. EUGENE SECOR.

Forest City, Iowa, July 20, 1886.

CARBOLIC ACID FOR QUIETING BEES, HYBRIDS, ETC.

DOES THROWING DIRT BRING DOWN SWARMS?

YOU ask if my bees are hybrids. I think they are. I send off and get new queens every year or two; but the first thing I know they are all hybrids again. They seem prone to run to hybrids as sparks to fly upward.

If carbolic acid used in smokers makes other bees as cross as a rag wet with it did mine, I do not envy anybody all the fun they will have using it. I used it on one of my best Italians, and they stung me so that I could not shut my fingers enough to feed myself for a day or two. I don't want any more carbolic acid in mine.

Ernest asks one of the juveniles if he really believes that throwing dirt among a swarm causes it to alight. Of course, it does. Our work-hands used to bring them down every time if they were crossing a field where there was plenty of loose dirt. That was before I began clipping the queen's wings, when swarms ran away every day in swarming time. Neither tin pans nor drums, dinner-bells, nor yelling helps a mite; but *hitting* them with dirt or water does.

WHAT MADE THAT TOE-NAIL COME OFF?

Now for that toe-nail of yours. I have been trying to attend to it for some time, but have been just too busy for any thing. Friend Root, you *did stub that toe* — Mrs. Root was right, as she always is. Of course, I know you are honest in thinking that it came off for a little extra filing, but it did not. You stubbed that toe on Huber's cradle as you jumped out of bed some morning in a great hurry, or else you kicked it against the foot-board, or the Jersey cow stepped on it, or the wheel of the market-wagon passed over it while you were loading in lettuce, or your horse trod on it, or you let one of those fifty-cent hammers (the best in the market) fall on it, or else, or else, or else. Why, there are fifty ways that a man with his head in the clouds might stub his toe and never know it, and you are just as sure to have hit upon one of those ways as that your name is A. I. Root.

Vermont, Ill. MAHALA B. CHADDOCK.

Now, Mrs. Chaddock, I do not like to contradict, but I tell you that none of the things you mention have ever happened to that toe of mine. My mother says I was remarkably cautious, even when I was a baby, and I have not got over it even yet. I do not like to be hurt, and so I keep my toes out of the way. It was just as I told you—invisible forces met together as the trustees of a township do when they want to decide about building a bridge. They looked that toe-nail over critically, examining the place where I had gouged into it with the file, and finally decided it should be replaced by a new one—not a new bridge, but a new toe-nail, and it was just as I told you. During all the consultation, including the decision, I was not consulted at all, and yet it is *my* toe-nail. I am well satisfied, for the new one does not bother a bit, but behaves itself just exactly as a well-bred toe-nail ought to do.

NUCLEUS COLONIES.

HOW TO BUILD THEM UP FOR WINTER.

IT is probable that some who buy nucleus colonies do not know how to build them up to the best advantage; and a little help for them would not be out of place. Where fall pasturage is plentiful it would be a very easy matter; but where there is none, feeding must be resorted to in order to get them in good shape for winter. When such colonies are received from the express office the first thing to do is to get them out of the shipping-box and into your hive.

The best way to do this is to sprinkle from one-half to a pint of thin sugar syrup through the wire cloth, on the bees; and while they are filling themselves with it, carefully remove the wire cloth and the sticks that hold the frames in place. Have your hive placed where it is to stand permanently, and then carefully lift each frame and set it in your hive, placing them to one side of the hive, with a division-board next to them to keep them warm, and from running all over the hive. The bees are now in your hive, and to make them boom is next in order.

It would be best and cheapest to have on hand at least three frames filled with foundation, though empty frames will do; but it will take more time and more sugar. The next thing in order is the feed; and probably the best thing would be a syrup made after the plan given by friend Doolittle on page 762, Nov. 15, 1884. This syrup does not candy in the combs; at least, not as much as honey. I give the plan for making it, in his own words, so it surely will be right:

"Fifteen pounds of water was put into a large tin dish, and brought to a boil; then 30 lbs. of sugar was poured in and stirred for a moment till partially dissolved, when it was left over the fire till it boiled. Upon taking from the fire, 5 lbs. of honey was poured in, and the whole stirred enough to mix thoroughly."

Commence by feeding about one pint of this syrup every night, using any kind of feeder that you may prefer. After feeding four or five nights, spread the combs in the hive and place one of your empty frames, or one filled with foundation; and when this frame is well along toward completion, put in the second and then the third, putting in frames only as fast as the combs are built, or the foundation drawn out. If you had a three-frame colony to begin with, probably these three extra frames would be enough; but four or five would be better. If you use foundation, the combs, of course, will be straight; but if you do not, you must watch and see that the bees are building them so; and if they are not you must help them.

When they have three or four frames well filled with brood you can begin to feed heavier, so that they will have at least 20 lbs. of the syrup stored and sealed by the first of October for winter use. If they are in a chaff hive, with good chaff cushions over them, they are ready for winter; and if they are not, you must fix them up in some way so they will keep warm and dry.

Some may ask whether it would not be cheaper and less trouble to wait until spring, and buy bees then. It might be that it would, but I think that the experience a beginner would gain by building up nucleus colonies in the fall would well repay them for their time and trouble; and if they are careful they would have good strong colonies to begin with in the spring.

Remember, you must feed only at night, and be up early in the morning and remove the feeders, for your neighbors may have bees that would like the fun of robbing your bees. **F. W. MOATS.**

The Bend, Defiance Co., O., July, 1886.

WHAT SHALL BE DONE WITH UNFINISHED SECTIONS?

CONTRACTING, REVERSING, ETC.

GLEANINGS is at hand; thanks to Jas. Heddon for his two last articles. Now will he tell us what he does with unfinished sections? I always used wood separators till using his 7-to-foot sections and no separators. This year, for the first time I have got along without separators in some cases and get fair sections; but in putting back those part full they will be bulged badly. If a part of a section is capped half way, the rest will be built beyond the part capped.

CONTRACTING, AND RESULTS.

All hail to bee-men like Doolittle who care enough for those new in the business to give their experience. Will a contracted brood-chamber work in all localities? I contracted to six and eight frames—9½×14½, when I put on sections, and, in 60 colonies, I had 500 sections that were spoiled with pollen. The sections I used were 1⅞ and 1¾, with and without separators, and I saw no difference in the amount of pollen.

Heddon's reversible frame is the best, I think. Will not reversing frames cause bees to store pollen in sections? What do you think of a bee-keeper who sells his honey just as he takes it from the hive, in wide frames, and lets the grocer tear out the sections and bruise more than half? He takes GLEANINGS too. I sold scraped sections at 13 cts. in the same town in which he sold his at 10 cts.

I look for the open-side sections to replace all others.

The season opened nicely. Swarming began early, and kept up all through clover bloom. I lost a good many queens by swarms going into other hives. I clip all queens. I have no trees for them to alight on. I tried

HEDDON'S PLAN

of swarming, and did find chilled larvæ in the old colony. It leaves the old one very light before moving to a new stand, in some cases.

53, 70—**J. C. STEWART.**

Hopkins, Mo., July 21, 1886.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from July 15.

CHAPTER XXI.

The earth is the Lord's, and the fulness thereof.—PSALM 24: 1.

Many kind comments have come in regard to the former chapters of this my book on gardening; and one or two have complained that I have not given sufficiently the dark side of the matter. Well, although I have touched upon it all along, perhaps I have not given it enough in detail; and the past few weeks have given me an opportunity of writing a good chapter on the dark side. Up to July 1st we had hardly enough of *any thing* in the way of garden-stuff. But after that, first lettuce began to be somewhat of a drug on the market. We wrote to the city markets, but we were told that it could not be used at all. Then green peas began to be produced in larger quantities than we could make use of. A trial shipment of ten bushels was sent to Cleveland. They brought 70 cts. a bushel, and it cost 25 cts. a bushel to pick them and put them on the cars. After paying freight, but little was left. For a time we thought beets were always a great staple, and there seemed to be no such thing as getting enough. Now we have, however, perhaps 50 bushels, and no one wants them; that is, we have not yet found a market for them. None seem to be spoiling, however, and we are inclined to think the people will want them again after a little while.

The most discouraging article, however, has been early cabbages. As no such thing has ever been raised in Medina County, I, contrary to the advice of some of my helpers, planted largely. I expected to compete with the Southern trade. Well, my cabbages have done finely. I think that fully 90 per cent of the plants have made beautiful hard heads. We started them first on the wagon at 3 cts. per lb.; $2.50 per 100 lbs., or $40.00 per ton; and, by the way, I wish to say right here that it seems to me the only just and fair way of selling such stuff is to sell it by weight. We now sell cucumbers by weight, tomatoes by weight, cabbages by weight, and I begin to think the proper way would be to sell celery, bunch onions, and bunch beets, at so much a pound.

Well, when the cabbages didn't bring 3 cts. per lb. readily, we reduced the price to 2 cts. per lb.; $1.75 cts. per 100 lbs., or $30.00 per ton. This gave them another start; but for all that, I found we were not selling one-fourth as many as were getting mature. Some heads bursted open, or snapped with a report, while we held them in our hands. Others began to show symptoms of decay. Two of our best salesmen started for a large town 20 miles distant, with a two-horse load of cabbages. They did not sell enough to pay for their own time and the team. Finally we sent some to Cleveland on commission. They reported that the city was full of cabbages, and that they could hardly dispose of them at any price; and finally they were sold for just enough to pay freight and commission. At the same time that cabbages were getting to be so plentiful in our town they could hardly be given away, potatoes dropped rapidly from a dollar to 75 cts.; then 60 cts.; then 50 cts.; and a day or two ago I bought a load of them for 35 cts. per bushel. We can never raise potatoes on our grounds for 35 cts. per bushel; that is, it does not seem to me that we can. Apples have hardly brought 50 cts. a bushel at any time in our market; and yesterday I bought a load of nice picked apples for only 10 cts. a bushel, the owner saying he would rather sell them at that price than carry them home again. The total receipts of our market-wagon, many days, would not pay for the help on the wagon and on our ten acres, to say nothing about the cost of tools and manure. To add to the difficulty, others are bringing in produce without finding sale. A man wanted to sell us some "Jersey Wakefield" cabbages. I asked him how he came to have them so early. He said that he raised them from plants he bought of us, *of course*. When urged to have us take them off his hands at some price, I asked him if he had been to the neighboring towns, and he said he had supplied them with cabbages in every village and town within ten or fifteen miles of where he lived. What is to be done? I thought of reducing the wages of my helpers; but as I considered them one by one, I felt as though I hadn't the heart to ask them to work for less wages than they were already receiving. Our poor and inefficient help has all been weeded out. We have none but good men and good boys; that is, in their respective lines. The trouble is, that peace and plenty reign throughout our land, and everybody has an abundance of every thing without buying very much. Is it a trouble? Why, I think not. A drought or a flood, or something of that sort, might have enabled me to get better prices for many of my products; but surely no sane man would wish for such calamities to come on himself and his neighbors. Well, what did A. I. Root do in such a state of affairs? I studied the matter over carefully, and told my hands just how we were situated. To some of them who, I felt, sympathized with me, and with whom I felt it would be wise to state it so, I spoke something as follows: "Friends, we shall have to make it a subject of prayer. Let us ask God to give us wisdom, and tell us what to do in this crisis." Before asking God's help we want to be sure that the business we are engaged in is one that is pleasing in his sight. In my own case I prayed that God might help us to dispose of our produce, not solely because of the money we wish to make, but because I felt my undertaking in writing this book was a right and proper one, and that the few dollars that I might make in market gardening were a very, very small item when compared with the matter of setting our American people at work at their own homes in tilling the soil. Now, I have had so many answers to prayer, especially where I have prayed over business matters, that I presume I ought to have had faith that God would help us in this emergency as well as in all the others scattered along through the years I have been trusting *him* and going to *him* for aid and guidance. The only doubt that troubled me was as to whether my undertaking was really right or not. There are some features of the business that seem a little questionable. For instance, I had cut off the trade of the grocers of our town not a little. Then, again, I had, to a certain extent, harmed the very class I wished to help; that is, the farmers round about us who have been in the habit of selling produce in our town. We have been raising so much of certain vegetables that it left them no chance to sell any at all. I prayed over this, and prayed for them as well as for ourselves and our plans.

At the convention in Detroit, quite an animated discussion came up at one time because our bee-journals showed too much of the bright side of every thing; and a good honest friend of mine from Canada declared that, whenever I touched on the subject of "blasted hopes," I always wound it up with something bright and cheerful; that is, my black clouds all had a silver lining. I have thought of this a good many times, and I do not know but that I shall have to plead guilty, at least in this way: I do believe that God intended from the beginning that all of our black clouds should have a silver lining, and that, through great trial and tribulation, should come great victories and happiness.

When I fall I shall arise; when I sit in darkness, the Lord shall be a light unto me.—MICAH 7:8.

Now, I do not mean to say that things changed *right off* as soon as we commenced praying. For a time it seemed as if they went on just as before, or even worse. This was no new experience with me. I knew already, or at least I certainly ought to know, that, if our undertaking were a right and proper one, and that, if our prayers were in a line with the text, "Thou shalt love thy neighbor as thyself," an answer would certainly come. One of the obvious ways to dispose of produce is to advertise; but I could not advertise cabbages to the friends who read GLEANINGS. The expense of transportation would be, to at least most of you, more than they are worth. The only avenue open was our county papers, and so in went an advertisement something like this:

JERSEY-WAKEFIELD CABBAGES.

We have a fine lot of these excellent cabbages now ready for delivery. The price will be 2 cts. per lb.; $1.75 per 100 lbs., or $30.00 per ton.

We then went to the grocers of our town, and told them that we would furnish them fresh cabbages, cut to their order in any quantity they wished, at the ton rate. At first they did not seem inclined to handle our cabbages at all. They could get them from Cleveland, even cheaper than we could raise them; but when the country folks began to call for "Root's crisp hard cabbages," they began to give us some orders. At the same time, farmers stopped their buggies as they were going past, and asked for a cabbage or two. They soon discovered that it was indeed a fact, that our cabbages, fresh from the field, were a good deal nicer than any thing that had been shipped in from the large cities, and a good healthy trade started. I was so anxious to have the crop saved, that I gathered a great number of them myself, going over the field, and selecting first every one that looked as if it would burst very soon. Where they had actually snapped open, we offered them at a discount; where badly broken, at half the advertised prices. Now, these broken ones are as good as any for immediate use. In fact, they are usually the finest and most crisp cabbages in the field; and many people who wish to economize soon took advantage of this, and we began to see daylight in the cabbage-trade. At the present writing, very few have been lost. Where they are badly bursted, and have become discolored by the sun and air, we give them to the poultry.

Within five or six miles of us is a beautiful lake which has lately become quite a pleasure-resort. Our advertisement called the attention of the hotel-keepers at the lake to our business; and when men came to our gardens and began to make offers for the stuff just as it stood in the field, I began to feel indeed that God had heard our prayer.

"How much will you take for that lot of celery, just as it stands right there in the dirt?" said a customer a few days ago.

I told him that, as it was all we had that was really fit to put on the wagon, I could not take less than 5 cents a stalk. He did not take it at that figure, but thought he could give 4 cents. Now, none but those who have been through similar trials, and it seems to me that none but those who have been praying over such matters, can realize with what feelings I thanked God inwardly for this one answer to our prayers. Instead of having to draw our stuff away many miles, and then, may be, bring it back again, here were offers for it, and very fair ones, just as it stood in the ground. The same man wanted 20 dozen ears of sweet corn per day, and offered to go to the field and take it himself if I would let him have it at 8 cts. a dozen. While I write, another call has been made for sweet corn, and three men have gone over our whole field. Each man takes two rows; and as they pick it off it is all tossed into the row where the central man walks. A boy follows him with a couple of baskets, gathers it up, and puts it in the wagon; and as soon as the corn was loaded up it was sold. I recognize it as an answer to our prayers, and I thank God for having sent us these customers; yet bear in mind, dear friends, that God could not consistently have answered this prayer unless we had first done our part by having nice corn, nice celery, etc.*

The celery was banked up and nicely bleached clear to the tops. The corn was on ground that was carefully prepared and well manured. Those who had a taste of it wanted more; and so it must be through all our work. There is no excellence without great labor. He who expects God to listen to his prayers must be consistent, and do his part toward making it consistent for God to *answer* his prayers. I do not wish to have you understand by the above that we are now making money by market gardening. Our daily receipts pay for all our help, and some more. But about all that we can say is, that here and there are glimpses of sunshine, and pretty fair indications that we shall ultimately make our work a success financially. The following chapter will serve, perhaps, to make it a little plainer as to how it is to be done.

CHAPTER XXII.

He becometh poor that dealeth with a slack hand; but the hand of the diligent maketh rich.—PROV. 10:4.

No doubt some of the friends who have read thus far in my book will conclude that I am trying to teach some things which I do not understand very well myself. Well, some such thoughts as these were in my own mind a couple of weeks ago, and I therefore concluded that, before going any further, I would invest some money in visiting the most successful market-gardeners of the world. As our good friend A. N. Cole, whom I have mentioned here before as the father of the "New Agriculture; or, the Waters Led Captive," claims to have some of the most productive land on the face of the earth, I concluded to pay him a visit also. I thought I would visit father Cole first, and then go afterward to see the most successful market-gardeners, that I might be able to judge how much he has accomplished at his home on the hillside.

Toward the close of the 26th day of July it was my fortune to look upon said hillside.

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*A postal card is handed me while I am reading the proof of this page. It is as follows:

Wellington, Ohio, Aug. 10, 1886.

Please ship us four barrels best cabbage. Those you sent were fine; let this shipment be as good.

BOWLBY & HALL.

A few more such orders, and our whole crop of cabbages will be under control. After seeing them spoiling on our hands, can you understand that the above postal is a glimpse of sunshine—yes, sunshine among such commonplace things as a field of cabbages—the sunshine of God's love to his children, and to all who look to him in their troubles and wants?

By the way, round about the town of Wellsville, Allegany Co., N. Y., there are a great many hillsides, and some of them are pretty long hillsides, as well as pretty steep. Father Cole's garden is, some of it, located on ground so steep that it would be difficult for a horse to work it; accordingly it is mostly worked by hand. One of the first things I noticed were springs at the base of the hill —not natural springs, but *artificial* springs. Water was running from four of them at the time of my visit, and the four together made quite a little rill that passes along by the roadside. He informed me that, during the most severe droughts of the present season, some water was all the time coming from these artificial springs. He has just been making a larger reservoir at the upper edge of his five acres, and pretty well near the summit of the hill. This reservoir is to catch enough rain water so as to afford a constant supply to the covered trenches below it from one rainfall to another—or, at least, that is the theory; and I found water standing in the trench while I was there. Now, it occurred to me that this water, instead of passing along near the surface, would sink down into the gravelly soil and go straight into the hill, without watering the plants at all. Father Cole says, however, that this is a mistake. There is very seldom a hillside found so porous that the water runs straight down into the earth, instead of passing slowly near the surface, to the bottom of the slope. Although there had been quite a hard rain only a few days previous to my visit, no gullies and no avenues where the water had ever run over the surface of the earth were visible anywhere over his covered reservoirs.

It would be impossible to mention the long pleasant chats we had during the 24 hours I remained. Father Cole has been studying on this subject more or less since the time he was ten years old. His mind was first drawn to it by a paragraph in Morse's Physical Geography, under the head of "China." The statement is to the effect that the Chinese have for ages excelled in agriculture. They build large reservoirs on the summits of the hills, to catch rain water, and this rain water is allowed to pass slowly downward over successive terraces, so as to irrigate the vegetation from the summit of the hill to the valley below. Well, during these years that have passed, friend Cole has been a deep and diligent student of nature. Here is one of his theories: When the country was new, and our hills and mountains were covered with forests, the surface of the ground was protected by a carpet of leaves. When the rain falls on these leaves it is arrested until it can sink slowly into the earth, watering the roots of the trees, because these leaves hold pretty much if not quite all the water that falls on level plats on the summits of our hills, or even on high ground. The water from these rainfalls accumulates in the shape of bogs, morasses, or wet, swampy pieces of ground. From these wet elevated places, the water slowly descends until it strikes an impervious subsoil of clay, or, as is often the case, a rocky formation over which it flows, dropping over one shelf after another until it comes out of the hill in the form of springs. Man now steps in and clears off the forest. In many places in York State the hills were denuded, simply to sell the timber for firewood to the railroad companies during the time they ran their locomotives by wood instead of coal. After the forests were gone, the leaf-supply was stopped; and in a few years the ground became bare, so that it was cut up and gullied by each heavy rain. The rainfall in this case, instead of going into the ground, washes away the vegetable mold and vegetable soil, and carries it into the creeks. A clover sod might do something toward preventing this great damage and loss to the farmer; but clover sods are the exception, not the rule. The recent rage for tile drainage now comes in (draining off these wet spots), striking another blow at our hillside springs, besides going still further and damaging our wells. This reminds me that Prof. Cook remarked, recently, that he was *afraid* of the results of tile drainage. In his own neighborhood they had been congratulating themselves on draining off a wet piece of marsh that stood on elevated ground. But about as soon as they had the work nicely accomplished, the wells, one after another, in that vicinity, began to dry up and fail. It seemed to me at the time it could not be possible that our wells should be dependent on such marshy places and stagnant pools; but Prof. Cook gave it as his belief that they were. Father Cole, to convince me by an object-lesson, asked me if I could stand a tramp of a mile or two over the hills. Of course, I could. You, my friends, will know that, even if father Cole didn't. First we visited a beautiful soft-water spring, where water enough was running out of the end of the wooden trough, I should think, to fill a two-inch auger-hole.

"Now, my friend," said my teacher, "I

will show you just where that spring water comes from; nay, further: I will take you along the surface of the ground over its path from where we are now, to its fountain-head."

Of course, I wanted to know how he could follow the mountain stream where it was far under ground, through the hills. Said I, "Are you going to take a hazel-bush or peach-tree crotch, and make it bend down when you go over the subterranean rivulet?"

I wish you could have seen the old gentleman as he stopped and turned around and looked me full in the face, to give emphasis to his remarks.

"Mr. Root, unprincipled men who have, by accident, found the same law that I have discovered, have for ages made this innocent crotched stick an excuse for swindling the community. It is a big humbug and a swindle. The crotched stick does not help them a particle, but they use it only for an excuse to get money, and to blind the people. See."

We were going up through the forest, in a little sink of ground, where water comes down from the hills during very wet weather.

"Our underground brook is beneath our feet."

"But how do you know?" I asked.

"I know by the lay of the land, and I have proved it over and over again by digging down until I found the stream; but I can convince you in a few moments, without digging down."

We were now in the dense woods, far up in the hills, and the ground was becoming so damp that occasionally a drop of water hung on the under side of the shelving rocks. By and by it dripped from one stone to another; further on, and it trickled; and still further it was a little rivulet; further still, and we found a level sunken spot on the summit of the hill. Beautiful ferns and mosses grew here; and at one spot the water stood like a tiny lake.

"There," said my guide, "is the fountain-head of our spring. Put in tiles here, take away the water, and you have a few acres of beautiful ground, until you have exhausted the vegetable mold and decayed leaves on the surface of the ground, but—*our spring is gone.*"

I was glad to tell friend Cole, just about at this point, that I could tell him something also. Hundreds of loads of moss, or sphagnum, were at our feet, and yet he had never made any use of it for his "New Agriculture." Now then: Instead of using tile-drains to let this water off from this swamp I have described, or from thousands of other just such swamps, father Cole would let the water be where it is, simply dropping it below the surface in trenches filled with stone, shingling over these trenches, and having all the benefit of the rich soil you would get by tile drainage, or the *still further* benefit of letting the plants extend their roots down into the water. With the tile drainage you run the water with all possible speed down the hill into the river, and it is lost. With the "New Agriculture" you drop it down a foot or more and keep it to serve you during severe droughts when they come, and to water all the ground below it, clear down to the lowermost valleys. Do you see the magnitude of his undertaking?

Let me depart from the subject of agriculture a little to tell you something else that may be done. The town of Wellsville, at the foot of these hills, has a printing-office, the presses of which are run by a water-motor. This water-motor is not much larger than a good-sized water-*melon.*

"Friend Cole," said I, "how high up is the fountain-head that supplies this water-motor?"

"One hundred and ninety-six feet."

Indeed, with *196 feet fall* it is no wonder that that little motor, fed by a quarter-inch pipe, runs the printing-office. Now, father Cole's idea is, plenty of water falls on these hilltops (providing, of course, we husband the melting snows of winter as well as the summer rains) not only to perfectly irrigate all the cultivated land, but to run water-motors enough to *supersede steam.* Over father Cole's mantlepiece hangs a life-sized picture of Horace Greeley. Well, I took friend Cole to task a little, because of his extravagant claims (superseding steam, for instance, as above).

"Why, Mr. Root," said he, "there are possibilities growing out of this 'New Agriculture,' so wonderful that I did not dare to put them in my book."

One of these possibilities has something to do with the picture of our good friend Horace Greeley. Mr. Greeley visited California, as you may remember, and one especial hobby of his was that of irrigating the Great American Desert. Perhaps many of you are aware that it is now actually being done, and that America won't have any "American Desert" at all after a while, if we keep on. Well, Horace Greeley visited and looked upon the great mammoth redwood-trees of California. Not very far away from these great trees he noticed a river that ran into the ground and disappeared, something the way they do in the region of Mammoth Cave. When he got home he confided to friend Cole that it was his honest opinion that those trees were nothing more than common redwoods; that their great size was not owing to the species at all, but to the simple fact of having a subterranean stream under their roots, 10, 20, or may be even 40 feet down, where they drank both winter and summer, to their hearts' content, like the cucumber-vines in the barrel that friend Cole had when he was a boy.

Well, how about the five acres? how about the wonderful crops? how about making the steep and barren hillsides the choicest grounds for market-gardening?

To tell the truth, I was *somewhat* disappointed in the crops on that hillside. A great portion of it was devoted to strawberries, and the plants were really wonderful—larger than any thing I have ever seen in the way of strawberry-plants before. It is, however, well known that the strawberry luxuriates in plenty of water. The raspberries were about such as we have here at home—I think no better; but it should be remarked, that they have had a terrible drought this season, and the ground where they stand has had but little manure. I saw plum-trees loaded with beautiful plums, and found no trace of the curculio. Friend Cole thinks this is owing to his reservoirs of water beneath the trees; but I can not quite understand how it should banish the curculio. His quince-trees are covered with beautiful large fruit. His peas, which I saw in all stages of growth, from those just breaking ground to those just ready to pick, were equal to any I ever saw; but I believe considerable manure was used with them. His potatoes were fair; but the yield where we dug some for dinner was not extraordinary. They were not nearly ripe, however. He has used very little manure — nothing like what market-gardeners use; and in view of this his achievement is certainly wonderful. Near the house an iron pipe comes right out of the side hill. By opening a valve this gives a stream of water at any time—the water coming from the covered reservoirs. It seems to me that great results are to be attained by pumping liquid manure into the upper reservoirs; and if the sewage from a village, town, or city, could be thrown into these reservoirs, I think something wonderful might be accomplished. Rank-growing vegetation would consume and eat up all the filth, in my opinion.

After leaving friend Cole's I started for the market-gardens in the vicinity of Boston. As the newpapers have given us glowing accounts of the work of Mr. Rawson, at Arlington, in the suburbs of Boston, this was my first point; and for once in the world I was abundantly satisfied. I have mentioned before, that it is only *once in a great while* that I see plants make a growth to satisfy me. At Arlington, every thing grew under the high-pressure principle. The ground is a dark sandy loam, near the seacoast; but manure has been put on it year after year to such an extent that many of the grounds seem more like a barnyard than a field; in fact, the smell of ammonia can be perceived, even in passing along the streets. Market gardening seems to be a matter of course with everybody near Arlington. Elegant residences line the streets on either side. Well, at the back of these residences, and often between them, vegetable-gardens were always seen; rows of celery, long enough to satisfy even friend Terry; Henderson's Early-Summer cabbage, with heads so large it would seem a good man is needed to lift even one of them; and the most interesting part of it all to me is, that every foot of ground produces something — not only a plant, but a *prodigious* plant. In Arlington there are no fences, except, indeed, the tight board fences made to keep off prevailing cold winds, and these are not put up as boundaries, nor to keep out intruders, but simply for the purpose before mentioned; therefore I found nothing to hinder my going in and out among the vegetables wherever I chose; in fact, well-beaten wagon-tracks passed into the fields and gardens every now and then, for the purpose of carrying manure and bringing out the produce. As I passed along the street I caught a glimpse of a plant showing wonderful luxuriance, and one which I thought was new to me. A wagon-road passed through at one side of the grounds of this beautiful residence, so I followed it; and when I stood among the plants I found they were simply egg-plants—egg-plants certainly a yard high, and more than a yard across. There was perhaps half an acre of them; and every single specimen on that half-acre was a wonder. The same is true of early sweet corn, heads of lettuce, rows of celery, hills of squashes, etc. They have not yet arrived at such perfection as to have a prodigious head of cabbage exactly like its neighbor on every spot where a cabbage is planted, but they come pretty near it. Great wagons were in the fields loading up these wonderful cabbages. The cabbages were planted four feet apart, and yet the leaves covered the ground so completely that not even a wheelbarrow could be passed between the rows. Accordingly they have an odd sort of a wheelbarrow without any wheel. Instead of having a man at one end and a wheel at the other, they have a man at each end, and on this arrangement the cabbages are carried to the road alongside of the patch.

On the next page I give you a cut which illustrates very well the appearance of the market-gardens around Arlington. The cut was furnished me by the Planet Jr. folks, and was made to advertise their implements; but you can overlook the implements, and you have a very good idea of the Arlington market-gardens.

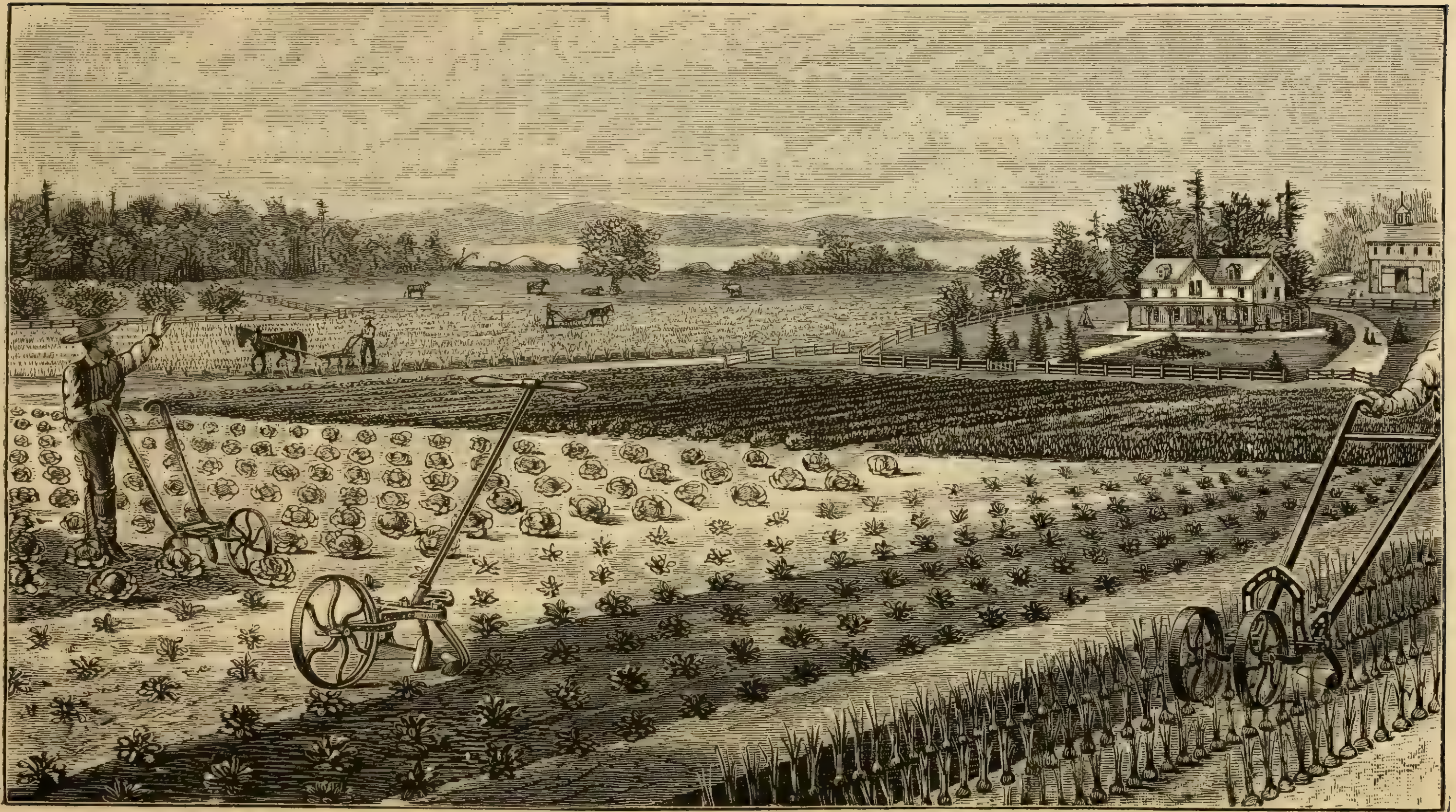
Everybody seems to be very friendly and pleasant in Arlington. In going in and out among the shrubbery, in my inquisitive way, I frequently passed by the occupants of these fine places. While I was examining the egg-plants, a young lady eyed me curiously; but when I explained that I was attracted by the wonderful growth of their beautiful plants, she invited me to make myself at home, and examine any thing that I was curious about. At one point I was attracted by a beautiful flower-garden on one side of the road that passed into the grounds, while across the track were rows of beets in all stages of development. Some of the beets were just breaking through the surface of the ground. A rod or two further they were two or three inches high; still further, nearly fit for market; and finally there were long rows ready to pull. The seed had been sown at different times, so as to give the effect of rising in steps — one step above another, so that, after one sowing was marketed, the next came right after it, and so on. Now, the flower-garden was beautiful; but this little field of beets I think was one of the most beautiful sights I have ever beheld in my life. Of course, hand-weeding is required where every inch of ground is cropped so closely; and in two different places I saw women from the old countries down on their knees pulling out the weeds. I like to pull weeds where the ground is as mellow as it was there, and so I stooped down and pulled weeds a while just to see what fun it was. It had rained the night before, and the weeds came out so easily that it *was* just fun. Who would not like to do gardening with such a soil as they have in Arlington? Well, I reluctantly passed by the beets. Perhaps I should add, that not a weed is to be seen, except among seedlings just coming up. When they get older, the ground is kept almost absolutely clean by the use of scuffle-hoes and similar tools.

Further down I met a man at work on the iron pipes used for irrigation. At Arlington irrigation is used whenever necessity demands it. If it rains, well and good; and if it does not rain, they run water between the plants in the furrows. With celery, a deep, narrow channel is plowed, within about one foot of the roots. Water is taken to the highest point in the rows, and allowed to descend both ways. I explained to the man at work at the pipes that I was attracted by the beauty of their grounds. He bade me welcome, and regretted that he hadn't time to show me around; but he said, "Father is over there in the field; I think he would be glad to talk with you."

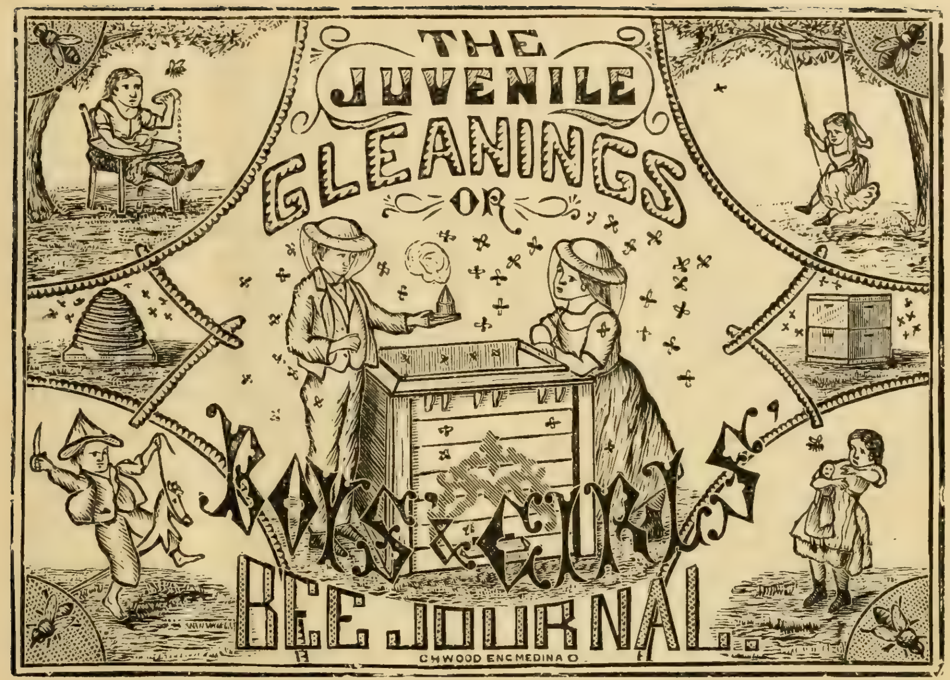
As I came near the old gentleman, I discovered he had a hoe about twice as wide as any we use. The blade, however, was quite narrow. Well, in this soft soil, with such a hoe, even the old gentleman could cut up weeds very rapidly. I found him to be quite aged — so old that his voice trembled quite perceptibly when he spoke. He seemed pleased to find me so much interested, and to know that I was from Ohio. He said, when he was a boy he too wanted to go to Ohio; but it was then away off in the wilderness, and he found that all the money he could rake and scrape together would but just take him there; and then if he didn't happen to like the far wilderness he wouldn't have any money to get back with, when he decided to stay and make garden on the very patch of land where we were standing. He was one of the pioneers in Arlington market gardening. We passed a field of early sweet corn. It was a wonder to me, for every hill had just so many stalks; each stalk was just so high, and had just so many ears on it, and the quantity of ears was so great that the stalks were bending over—each hill toward its neighbor, and each ear seemed to be plump and full, just like every neighboring ear. I expressed surprise, and asked him how many years he had been cultivating that kind of corn, for I naturally thought it must be some new-fangled wonderful yielder. I was a little surprised when he replied, "Nigh on to forty year."

As this chapter is getting pretty long, and as I gleaned a good many things that I want to tell you of in that talk, I think I shall have to reserve the rest for another chapter.

To be continued Sept. 15.



MARKET GARDENING—A SKETCH SHOWING THE WAY THE GARDENS LOOK AT ARLINGTON, MASS.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

Who is my neighbor?—LUKE 10: 29.

IT was toward evening, just after a beautiful summer shower, that I was on the street-cars in the beautiful town of Arlington, in the northern suburbs of Boston, Mass. The whole place was almost a garden of Eden to me, on account of the vegetable-gardens that spread out on every hand. I had succeeded in finding just the spot that I had for so many years longed for—the spot where gardening is conducted up to the highest standard of intelligence; for it was just outside the limits of the great city that some of the Massachusetts people entitle the "Hub of the Universe." I felt as if I could have walked the whole thirteen miles to the city; but it would have taken too long a time, therefore I stepped aboard of a bright, new, spacious, and airy street-car, such as they have in the suburbs of cities. All at once a vision sprang up before us, so bright and beautiful I almost wondered if it could be real. A florist had arranged, on a beautiful lawn that sloped toward the street, figures of wondrous beauty, all made by planting different-hued coleuses. The recent shower had washed every particle of dust from the beautiful foliage, and the colors flamed out like those of a rainbow. The thought instantly sprang up into my mind, "A painting in which the colors are done by the finger of God."

A good many things contributed to make me happy that July evening. The residences along either side of the street were most beautiful; and glimpses of long rows of celery-plants contrasted with rows of different kinds of lettuce between them; then rows of other vegetables, as they flashed from the open spaces between the dwellings, which were quite a good distance apart, all contributed toward making me feel as if I had been almost transported to some fairy land.

Just as the work of the florist passed from view, a pair of spirited ponies came up from behind us on the other side, with a light, graceful, and fantastic carriage. The horses were a pair that might please the eye of any lover of the horse kind. The buggy might also call forth expressions of wonder and delight, it was so unique. The occupants were a couple of young ladies; and at first glance one would be inclined to pronounce them people of rare intelligence, and from the higher circles in life. They found acquaintances on the street-car, so they drove alongside while they chatted. My eyes first fixed themselves on the horses, then on the carriage, and finally on the occupants. I had been gazing in dazed wonder, almost, at the coleus-bed, and now I sat silent while I gazed for a brief moment at my neighbors opposite me in the carriage. Yes, I think they were my neighbors, even if they were beautiful — yes, wondrously beautiful. Jesus called our attention to the way in which God has arrayed the lilies of the field so that even Solomon in all his glory was not arrayed like one of them. Now, if God has given beautiful forms and colors to the floral and vegetable world—yes, even to the different forms of animal life (the horses at my side) is it any thing wonderful or strange that, for some all-wise purpose, he has now and then clothed the human form divine with wondrous beauty? And when this beauty is accompanied by unusual intelligence, ought we not to pause and wonder, as well as give him thanks? Is it wrong to admire beauty? Surely not, providing that, while we admire, no trace of any feeling springs up that will in the least transgress the command, "Thou shalt not covet." Beauty is a dangerous gift, and so is wealth; and, my friends, let us pray that God may help us so to rear our children that they may safely be intrusted with wealth as well as beauty; that both sexes may consider all these gifts as coming from him, and be enabled to use them for his honor and his glory, and to lay them at the Savior's feet. I did not want to seem rude, so of course I was bound in courtesy to give these new neighbors of mine only a passing glance. They were utter strangers to me, and I do not think any thought entered my mind of wishing for even an acquaintance. They moved in one sphere of life and I in another. God wishes me to perform my allotted work as he wishes them with their beautiful turnout to perform their allotted work in life. It was not in my province to recognize their existence by word or action, unless by the brief glance I told you of; but it *was* in my province to be working for the Master, even at that very moment, and among these very neighbors, too, whom I had found so far away from my own home. Do you ask why? Listen:

While these thoughts were passing in my mind, the street-car stopped. As I glanced toward the platform I guessed the neighbors who stood there were a trio of young mothers with their home treasures. There were three of the mothers, and they had three or four of these treasures apiece; and said treasures were all jubilant at the idea of riding on a street-car. They had got on their Sunday best, and were sweet and clean and bright and happy. As there were but few passengers, each little one was permitted to have a seat and plenty of room to feel happy. As they took their places I gave them a welcome, and remarked that there were almost enough to start a Sunday-school. I could at once see by the looks that were exchanged how many of our passengers were interested in Sunday-school work. The car stops again, and a big lady looks with dismay at the prospect of no seat because they are all occupied by the prattling juveniles. The conductor finally remarks, "Here, you youngsters will have to stand up, some of you." Three pairs of fat chubby legs slid off to make room for the lady. I supposed she would, of course, take two of them in her lap while she made room for the third; but she did nothing of the sort. Even the sad and disappointed faces that were occasionally turned up toward her made no impression on her hard heart. Finally a curly-headed little boy about the size of Huber began to cry because he could not sit down. His mother by my side had one child already in her lap, and so I proposed to take him. She said he was quite bashful, and she was afraid he would not let me. I felt sure, however, I could make myself agreeable, and I did; and by the time he was contentedly sitting on my knee, some other passenger took the hint and took one, and then the big lady volunteered to hold the remaining one. The little fellow was not so easily mollified. He sat on the extreme edge of the lady's knee, and hung his head in a sort of pout. Once in a while he cautiously turned his head enough to get a brief glimpse of said lady's face. It did not seem to reassure him, however, very much.

The shades of night are now dropping over us, and the little one has laid his curly head over on my shoulder, and gone to sleep. For fear he may take cold, the mother throws a light shawl about him. Her accent indicated German origin; and as I glanced from the little one's black curly head to the mother's curly head, almost like it, I became satisfied that at least part of the group had African blood in their veins. I was perhaps holding to my breast a little curly-pated boy-baby with negro blood in his veins. Well, what did it matter? Even if the parents *have* at some time in their lives done wrong, surely there was no wrong in this little one's heart, and who could think of blaming him for the existing state of affairs? My little friends, what Scripture text do you think came into my mind? "Suffer little children to come unto me, and forbid them not, for of such is the kingdom of heaven," Jesus said. He did not say a word about white children, Indian children, or negro children; and if *he* did not, why should I? and I decided in a moment that I was doing the work he had planned for me to do, and I felt happy in doing it.

Two days before, during the stage-ride from Lawson, Cattaraugus Co., N. Y., to Versailles, I passed through what is called the Indian Reservation. Many thousand Indians of different tribes from the State of New York have a tract of land allotted to them. They have farms, cultivate the soil, and raise crops; they also have schools and churches. When I was stopping at the station, a wagonload of them came to the store to trade, bringing in red raspberries picked in the woods and fields. They were intelligent, and looked and acted very much like white men and women. The young mothers had their little ones along with them. The children were dressed prettily, and their mothers seemed as anxious to have them behave themselves with propriety as any of our white mothers. The loungers around the village store said hard and uncharitable things about these people, especially of the mothers; but I am sure it is certainly not *all* true. My heart warmed toward the little ones, and I longed to see them brought into the Sunday-schools, and taught of Jesus their great friend. The driver told us that many of the older people still hold to their pagan superstitions, and that some of them still kept up the time-honored ceremony of something about burning a white dog. He said the only hope seemed to be in educating the children. He added, also, that depraved and dissolute white *men* were doing more harm in forcing themselves among them than the U. S. government and Christian people could do good. In our text the question is asked, "Who is my neighbor?" Now, I can answer for myself, that all these of whom I have been speaking are *my* neighbors. When Jesus said, "Thou shalt love thy neighbor as thyself," I am sure he meant that *I* at least should understand him to mean not only the Indians, but the negroes also; and it thrills my heart to take a good strong man of either race by the hand, and to welcome him as a brother in Christ Jesus. While I regard them as brothers, and long to help them, and to lead them to the Savior, I think it wise and just that there should not be intermingling of the races; but for all that, He who has said, "They shall be my people, and I will be their God," I am sure meant to include all humanity, of whatever clime or parentage.

THE SOLAR WAX-EXTRACTOR.

HOW TO MAKE ONE AT A SMALL COST, AS MADE BY A JUVENILE.

ON page 587 of GLEANINGS for July 15, Ernest requested me to give a description of my solar wax-extractor. I made mine small, as I have but few colonies, and consequently but little wax to extract. Each little scrap of comb can be thrown in, and very quickly made into wax, with no danger of worms bothering. I tried cooking an egg in March, but I left it in too long, not being used to cooking, and I haven't tried it since, as I have been so busy. It was cooked "too much done." To make an extractor, any one who can handle tools can make one at a cost not to exceed 20 or 25 cents.

Use half-inch stuff. First get out two pieces, 6x10½ inches, for sides; two pieces, 6x7½ in., for ends; two pieces, 8½x10½ in., for cover and bottom. Make a frame or sash 8½x10½, outside measure, to hold a pane of 8x10 window glass; this is the size that I used. Also make a frame 9x7 to nail the tin to that forms the basket that holds the comb—one piece of tagger's tin, 8½x10½, to nail to inside of cover for a reflector, and another piece 7½x9½ to nail to the 7x9 frame, letting the middle sag down so as to hold the comb when thrown in. Perforate this with ⅛-inch holes to let the wax run through. Drive eight 2-inch wire nails for the frame to rest on, about half way down the inside of the box, and put a square tin pan in the bottom to catch the wax. The sash holding the glass lies flat on the box, and the cover shuts down on top of that. Strips of leather, ½ inch wide, for hinges, make it easy to raise either the cover or glass, or both, at a time; and a hook on the sash and one on the cover, and a staple in the box, make it easy to fasten. When neatly painted it makes a nice little ornament, and will pay for itself in a short time.

I have taken about 48 lbs. of nice comb honey in one-pound sections from my best colony, besides one new swarm, and more honey to come off yet.

FRED W. CRANSTON.

Woodstock, Ohio, July 20, 1886.

We are very much obliged to you for your very clear description of how to make a cheap solar wax-extractor. No doubt the one you made will do as good work as the larger and higher-priced one illustrated in GLEANINGS some months ago, though it will not melt as large a quantity at a time. I do not know but that I would prefer the smaller one if I wished only to melt up little scraps and bits of wax such as accumulate in the apiary. It is more portable, and costs considerably less, and, better than all, the juveniles can make it. ERNEST.

HUNTING BEE-TREES.

PROOF-READING, AGAIN.

WE insert the following letter just as our little friend "elizzebuth" wrote it—pure and simple. To correct the mistakes would spoil its originality of style, and I think our little friends will have no trouble in making out the story. If the little folks wish, they can count the number of misspelled words and wrong use of capitals. There are other mistakes of a different nature, but you had better not "tackle" them. This will be good practice, and will help you to write correctly.

Father takes gleanings and i see in it where i can i Be lieve earn a Book By righting to you something about Bees. i think it is something new any way. pap ses it is any way; why papa you no is a grate Bee hunter. he went out yesterday to look for Bees and he found too sworms in one tree. the first sworm was a bout 16 feet from the ground, and then they was a division and then there was a nother hollow and it had another sworm in it; i was with him when he cut it. he thought it was an old Bee tree and we would get lots of honey But it was not. it was Both young sworms and one of the sworms was the little Black Bee and the other highest sworm was the larg Big italion and when he got the tree down and split open why the Bees Both mixed up together. well i asked pap if he was a going to put them all in one hive and he sed he was not if he could find the queens Both. well he looked around and seperated the bees till he found one queen and it was the little black queen. well he hived one sorm then he sed he must take them home before he could hive any more Be cause they was enough left yet to make a nother good soworm. well he took that sworm home and he told me to stay here till he would come back and for me to smoke the Beese and Bother them so they could not huddle to gether to git ready to leave till he come Back. well i don so he was not long gon he had not very far to go. well when he came back why it was about 12 oClock and he went to work to see wether he couldnt find the other queen he hunted a while and found her. well he ses lisey i found her. well i went to see her Be cause i had seen the other and i wanted to see what difference they was. well they was a Big difference she was i do Believe twised as Big and she was yallow queen. well now to hive them. well he done that very quick and it was a average sworm pap sed. well he had not more than got them in the hive till a long comes a nother Big swarm and we could not keep them out of the hive they lit on the hive and pap tried to keep them out But all was in vain they was Bound to go in. well they went in and they filled the gum purtey near to the Brim. well he took them home and put them on a stand and the next morning he looked under the hive and found his i talion queen ded and he was vext a Bout it and now the Bees are working and appeare to Be doing well. he ses he is a going to get a nother italion queen. ELIZZEBUTH.

Thank you, "elizzebuth." I am sure no one will doubt that you were an eye-witness, as we call them, of all that you report for the press. I will say for your encouragement, that your letter is no worse than the average juvenile letters. With our present system of spelling it is a wonder that the little folks do as well as they do. ERNEST.

JAPANESE BOYS AND GIRLS.

BY ONE WHO HAS BEEN AMONG THEM.

MR. ROOT:—After considerable wandering we have settled down to a quiet country home in a small town. The seminary which I attended in Reading will be removed here next autumn, when I shall attend it again.

Since coming here my brother thought he would like to keep bees; but as he has had no experience whatever in that line, could you please recommend a book for him to read, or give him a little advice how to go about starting? He is very anxious to keep bees, but I don't think he has ever been in an apiary or seen much about bees.

My thoughts often revert to Japan, and I think of the jolly times the boys and girls there are having during this season. About a month ago was the time for their temple festivities; and though June is the month for general wet weather, regardless of rain they celebrate their religious holidays with great zeal. Great carts drawn by oxen, and sometimes men, are festooned with various paper decorations in the form of fringes and scenery; and Japanese idols, with hideous faces, are taken through the streets. A band with drums, bamboo fifes, and violins, is usually found on the cart, and by its music (?) draws crowds of eager children who shout at the top of their voices, all together making a very noisy procession. Huge casks of wine, profusely decorated, or small temples are borne on men's shoulders through the streets, preceded by priests, who ask alms as they pass. Every one, in whatever circumstances he may be, is expected to contribute something, and also to be dressed in a new suit of clothes. The Christians often get into difficulty in that way, and the house of one of our converts was damaged considerably because he did not give any money to the priests. The little boys procure smaller casks, and carry them about in a wild manner, trying as best they can to imitate their drunken seniors by loud talking and foolish gestures.

Large, fierce-looking wooden dragon-heads, with long draperies of coarse green cotton, are sometimes taken through the city. They, too, are followed by long processions of men, women, and children, some of the latter finding employment in fanning the "dragons" with paper fans or tufts of feathers or hair. You can imagine that the youngsters enjoy these exciting times. But a far pleasanter way, to us, is practiced about the middle of July, on the evening of the second Saturday after the Fourth, when the government has public fireworks displayed on the river S—— running through Tokio. On this occasion many boats full of people assemble on the river; other persons watch the works from the tea-houses on its banks, while the streets are crowded with the poorer classes. The fireworks are well worth expending a little money on. They appear in various beautiful shapes, and are brilliantly illumined. The lookers-on seem to appreciate them fully, for loud shouts of applause, which can be heard for several miles, follow every especially attractive form.

ADA M. KRECKER.

Fredericksburg, Pa., July 20, 1886.

JUVENILE·DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

THE last time. I told you how a bee talks and scolds *folks*; but how do you suppose they talk to each other? This is a question that big folks have tried to solve, and I don't think they really know to a certainty yet. But bees do talk among themselves somehow or other—perhaps not talk, exactly. but they make themselves understood. For instance, a bee has just found a great chunk of honey in the kitchen. After filling himself up full he goes home; and when he comes back he will bring a lot of others, and these others in turn will tell the rest of the bees, until by and by the whole colony, if there is honey enough, will become wild, and finally the whole apiary. Now, how do the bees tell each other that there is something awful nice over there in Jones's kitchen, and that they can get the ill-gotten sweets without the sweat of their little brows? I want you little folks to tell me how they manage to tell each other. Some of the big folks say that they cross their feelers (those kind o' horn-like things that stick out of the bee's head), and that, having done that, they seem to understand. Did you ever see a young bee come in the hive with his first load of pollen or honey? How he will wag his little body in the center of a circle of bees! He acts just as though he were tickled all over, like your little puppy dog when he wags his tail so hard as to shake his whole self. Why do you suppose the bee should make such a fuss? The big bee-men tell us that the bee has just returned with his first load of honey, and that he wants every bee to know it. If I am not mistaken, old bees are guilty of such nonsense. Now, isn't it possible that the old bees, by this "wiggy-waggy" motion tell their mates that there is lots of honey over in Jones's kitchen? Perhaps I am mistaken; but suppose, if you have an observatory hive (if you do not have one you had better get one), you take one or two bees from said hive and put them into a glass-covered box where there is a little chunk of honey. Mary and Johnnie are to watch the bees, one on each side of the hive. In the mean time you are to carry the bees you have caught, some little distance away. When the bees have become pretty well filled with honey you are to dust a little flour over them and let them loose. They will, of course, go right back to their hive, where Johnnie and Mary are watching, and who are to watch these two dusted bees as they come in, and to note how they behave. In some way or other, probably by their peculiar actions, the two bees will induce others to go back with them. Then Johnnie and Mary are to watch them closely and see how they behave.

How many Johnnies and Marys are we to have report for the next JUVENILE GLEANINGS upon this point? It may be that it is too hard a task to perform; but if you succeed well I will send you a nice present of some kind. ERNEST.

A MOUSE DESTROYS THREE SWARMS.

My uncle put some of his bees in a house, and a mouse got in and killed three swarms and carried four quarts of seed corn into the hive. I intend, if I live, to help Uncle Henry with the bees, and hope to learn something more about them.

Hornby, N. Y. GRACE HAVEN.

WHO WANTS SOME CACTUS-BLOSSOMS?

I walk 2½ miles to school, barefoot. Sometimes I get cactus-briers in my feet. The cactus has pretty blossoms—some red and some yellow. If anybody wants any, I will send some for cloth enough to make me or Rhoda (my baby-sister) a dress.

ZELLA H. WRIGHT, age 7.

New Helena, Custer Co., Neb., July 10, 1886.

HOW TO MAKE HONEY GINGER-SNAPS.

I live with my aunt and uncle, who keep bees. They have 71 colonies and 16 nuclei. We have taken off 3000 lbs. of honey, 300 lbs. to take off yet. We bake ginger-snaps with honey. We like it better than molasses. We use honey in making jams and in canning fruits. I will give the ginger-snap recipe: 2 cups of honey; 1 cup of sugar; 1 cup of butter or lard; 1 teaspoonful of soda; 1 teaspoonful of cloves; 1 teaspoonful of cinnamon; 1 teaspoonful of pepper; 1 teaspoonful of ginger. Boil all together five minutes; stir up thick with flour; roll thin, and bake.

I read about a solar extractor. We have one.

NETTIE BRECKBILL.

Kirkwood, Warren Co., Ill., July 20, 1886.

HOW TO HATCH CHICKENS.

I saw that you were having trouble in batching your Brahma eggs. Did you keep the eggs moist enough? Mamma makes her nests by putting dirt about three inches deep in the box, or by digging up a turf. Turn it over and scrape out a hole in the center, and turn it over in the box, and you have the place for the eggs. Now dampen this, and it stays several days, and holds the heat that is necessary to hatch the eggs. Our lettuce and cabbage grow so fast in the garden that mamma said she thought that even Mr. Root would be satisfied. JESSIE S. SMYLIE, age 10.

Caseyville, Lincoln Co., Miss.

HIVING A SWARM OF BEES.

We have 20 stands of bees. The first one came out May 12. We hived it, and on the next day it came out and flew off. We followed it, and it went about a mile. It went into a beech-tree. We cut the tree down, and got the bees in a box and brought them home. We put them in a hive, and gave them a frame of brood. They did well, and made about 25 lbs. of honey above, and on July 1st it cast a large swarm.

HARRY S. GREENFIELD, age 13.

Somerville, Butler Co., O., July 17, 1886.

Did you give the bees a frame of brood when they were first hived? Remember, it is the *unsealed* brood, not that which is capped over, which you are to give to swarms just hived. ERNEST.

CUTTING OUT CELLS TO PREVENT SECOND SWARMS.

Papa's 9 swarms of bees have increased to 20. He took off over 100 pounds of honey yesterday. He did not intend to let them swarm more than once apiece. One colony sent out a second swarm on the eighth day after the first came out. The other colony papa cut out the queens-cells on the seventh day after the swarm came out, and he found some of the queens out then; and in another he found three hatched on the seventh day; and he expected they would swarm again; but the next morning he found two of the queens dead in front of the hive. Besides these, three colonies have been left queenless by cutting out all the queen-cells but one, and that would die in the cells when full grown. CLARA LINDSEY.

Harford, Susq. Co., Pa., June 30, 1886.

The plan of cutting out all the queen-cells but one to prevent second swarms is quite generally practiced, and, as a rule, I believe the remaining cell hatches, though as in your case it sometimes fails to do so.

ERNEST.

WHAT SHALL BE DONE IN A CASE OF SEVERE STINGING?

In the fall of 1884, when my uncle was feeding his bees for winter, a heavy-laden bee which had "stolen the march" on my aunt by getting into the kitchen and taking a gorge of syrup was picked up off the floor by one of my baby-cousins, a boy one year old. The bee stung him on the fore-finger of his left hand. His finger, hand, and arm swelled alarmingly, nor did the swelling end there; for in about twenty minutes his whole body swelled and was covered with white spots. The mucous lining of his nose was so much swollen that he was compelled to breathe through his mouth. My aunt was not a little alarmed. Uncle picked him up in his arms, and carried him as fast as he could to a neighbor's house where they gave him plenty of whisky, and in half an hour the worst symptoms had disappeared. Uncle is a strong temperance man, and does not want either the stinging or the cure repeated too often, and wishes to know if poultices of mashed onions applied to the arm-pits in case of severe bee-poisoning would not be as sure a remedy as alcohol taken internally.

Wm. Joseph Miller, age 14.

Hornings Mills, Ont., Can.

It would seem that the whisky saved the child's life, though it is possible he might have recovered without it. It is said to be an antidote for rattlesnake bites; and if the poison of the snake is similar to that of the sting, no doubt the whisky should be given, by all means, when the life of the patient is endangered. By no manner of means would I use the liquor under other circumstances. As regards the other remedies, I can not answer. Perhaps some physician who is thoroughly temperance in his views could give us light; but please bear in mind that we do not want remedies for ordinary stings where no danger is apprehended.

Ernest.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A GOOD REPORT FOR CATNIP AS A HONEY-PLANT.

THIS plant, *Nepeta cataria*, is found extensively in the woods and waste places. Here, on the banks of the Ohio River, it has been spreading to an advantage for three or four years. After the white-clover season was past, the bees worked strong on catnip, and continue to do so at present. Many of the unfinished sections, and also the spare room in the brood-chambers, have been filled with honey made from this plant. Even the nuclei send out their "honest workers" to gather a few drops of this abundant nectar, and they are building up. Thus, much of the trouble of feeding weak colonies is now saved, and there is less danger of their being robbed. The bees work on catnip from early morning until almost dark. Through the heat of the day they are found on it, especially if the catnip is in the more shaded parts of the pastures. When the hot days of late summer come on, the plants which are protected from the sun thrive better than the others. Probably if cultivated, catnip would yield considerably more than it now does. Yet, as it is, we are satisfied. As every one knows, catnip is not an injurious weed. One can hardly find a yard or garden without having a few plants. The honey made from catnip appears to be equal to that produced by white clover; and from the fact that catnip remains long in bloom, apiarists should at least save all the plants they may find around them, and give it a trial. In June, 1885, we ordered an Italian queen from you; she has proven to be of fine quality. Ernest Danglade.

Vevay, Ind., July 28, 1886.

WHY DON'T THEY START QUEEN-CELLS?

I have a queenless colony, caused by destroying all the queen-cells but one (to prevent afterswarms), and that failed to hatch. I gave them a frame of eggs, but they have not started any queen-cells. Was it because they are waiting for the dead queen-cell to hatch? They have been queenless two or three weeks. Should I have destroyed the dead queen-cell when I got them the frame of eggs? I know they are queenless, because they have no brood nor eggs in the combs. The combs are full of pollen and honey. If I give them a queen, will the bees clean the pollen out so the queen can lay?

Nokesville, Va., July 8, 1886. W. T. Allen.

A colony of bees will, once in a while, fail to start queen-cells, when it is a little hard to decide why. In such cases we think it best to give them a reinforcement of young bees in the way of a frame of hatching brood. If this frame contains unsealed larvæ, they will very seldom fail to start queen-cells on it, unless they have something in the hive that they look to as a queen. Workers will always prepare a place in almost any comb fit for the queen to lay in, even if they have to remove both pollen and honey.

IS WAX EVER ADULTERATED WITH CORN MEAL?

On page 543, Gleanings for July 1, second column, in reply to D. J. Spencer, on the subject of brittle wax, you say some of your specimens seemed about like Indian meal. I think if you had put it to a test you would have found it was largely composed of Indian meal. Friend Lake had a similar lot, and he proved it was Indian meal, so you see there is cheating by even our vaunted bee-men. Is there no way such rascals can be ferreted out and brought to justice? In Lake's case he was unable to, having previously mixed the different lots together. Yellow Indian corn ground fine can readily be mixed with wax to a considerable extent without detection, so far as sight goes. Of course, it will render the wax brittle and destroy its ductility and tenacity—two very important qualities needed in comb-building. You are in for exposing scoundrels, so suppose you ferret out corn-meal scoundrels, and expose them. C. Garwood.

Baltimore, Md., July 6, 1886.

The wax referred to was not adulterated with corn meal, for it could be melted, every bit of it, into a liquid. It would, however, assume the granular form again as soon as it commenced to cool.

HOW TO MAKE BEES WORK IN SECTIONS.

On p. 570, July Gleanings, Mr. J. M. Tucker asks: "How shall I make my bees work in the sections?" I will give my own views in reply to that question, my views not being theoretical, but based on actual experiments. Any attempt to "*make* bees work in sections" will prove a failure; for while they can, to a certain extent, be led, they can't be driven at all.

The advocates of reversing frames claim that, by so doing, they place the brood above the gathered honey, and the bees then carry it at once into sections. While this is true, it is far from being economical, as the honey must be handled several times in order to place it where it should have been stored originally. It is desirable, then, to do away with this extra labor, which can easily be done, and thus save our bees many steps, and the loss that is always occasioned by moving stores from one location to another. The key to the whole mystery is the spacing of frames. Let the combs in the brood-chamber be just ⅞ inch thick, and spaced just a bee-space apart, then nothing will be sealed up below but brood, if ample room for stores is given in the sections above. All that Mr.

Tucker needs to do is to follow the above rule, and he will have no further trouble. J. E. POND, JR.

Foxboro, Mass., July 28, 1886.

NATIVE BEES OF FLORIDA NOT LAZY.

On page 534, July 1, Mr. C. Moorhouse writes: "The native bees are extremely lazy," and you index the article, "Bees of Florida Lazy." Last year was a bad year for honey, yet I had a natural swarm hived about the middle of March that had filled three stories (30 frames) by the first of June. No combs or foundation was given them. This year the same colony had the second story solid with sealed honey June first, and a crate of 27 sections nearly full. The sections were taken off June 27th, nicely sealed, as fine in quality of work as any man ever saw. They will average 1¼ lbs. each.

Bees swarmed but little this year. My spring count was 11 strong, 4 weak, in Simplicity, and 2 strong in box hives; increased by natural swarming to 21; extracted during June, 53 gallons, and took off 208 1-lb. sections. This honey can not be excelled. It weighs 12 lbs. to the gallon, and is clear, and very light in color. No, Bro. Root, the little fellows are not lazy. Sometimes there is nothing for them to get, and again the mosquito-hawks are so thick they do not fly; and they fight the ants and the moth-worm, the chickens and the children, and I don't know what all. But I do know that they gather lots of honey. Yes, they do work, and so well that I have about concluded our little native is about as good as the Italian, and that they set a fine example to some people who come down here and talk about the laziness of the natives — too many of whom are like Bro. M.'s Northern queens.

Lavasota, Fla., July, 1886. PHILIPPI.

WHAT TO DO WITH SURPLUS POLLEN.

Please state in next GLEANINGS what you do with combs in the spring that are from one-fourth to two-thirds full of pollen. Do you give them to the bees in brood or surplus chamber, or do you melt them up into wax? I put many such in the brood-chambers last spring, and I find it all there yet, so far as I can judge. H. LARGE.

Whigville, O., July 29, 1886.

Friend L., we never have *surplus* pollen in our locality, for the bees use up all that remains in the combs in rearing brood, and you know brood-rearing is a large part of the business in our apiary. The matter is frequently discussed in our back volumes in regard to the disposal of pollen. I believe the most practical way is to steam the combs by hanging them in a covered wash-boiler until the pollen is so soft it may be thrown out with the extractor.

SMOKE WITHOUT SMOKE; GOOD, AT LEAST FOR NUCLEI.

Take an insect-powder gun (Lyon's I am using), fill half full with crystals of hydrate of chloral; press the bellows. The hydrate of chloral evaporates and saturates the air, and stupefies the bees. I find this more efficient than the English method of saturating the air with vapor of carbolic acid and oil of tar. This latter also can be used in the powder-gun by pouring ten drops of each into the bellows of the gun, saturating the air in the bellows.

Tampa, Fla., July, 1886. J. M. PRICE.

Thanks, friend P., for your suggestion of hydrate of chloral; but is it not much more expensive than smoke? This is going to be the important point. We can not afford any thing that costs very much.

RED-CLOVER QUEENS.

Why should any one make a flourish about "red-clover queens," and advertise them as something wonderful? Our Italians, Holy-Lands, and hybrids, work right along on red clover. I stepped into a 40-acre field one day, and it was full of clover, and covered with bees. There were plenty of black bees there, but I saw none of them on the clover; they were working on a little blue flower. Most of the clover has been cut, and the second crop is coming—also where the wheat was cut the clover now appears. D. F. SAVAGE.

Casky, Ky., July 21, 1886.

Friend S., certain queens are called "red clover" because their progeny seem to have a way of gathering unusual quantities of honey during the red-clover bloom; that is, unusual compared with other colonies of similar strength.

OUR CARP-POND.

I should much like to have a report in next issue of GLEANINGS in regard to your carp-pond. I have seen nothing about it lately. Is it a success?

J. W. MARGRAVE.

Hiawatha, Brown Co., Kan., Aug. 2, 1886.

Friend M., it has not proved to be very much of a success as yet, for the reason that, with the multitude of my duties, I have not given it the attention it should have. For instance, although there are fish in the pond weighing several pounds, we have never tried one of them yet for food. Thirty or forty quite good-sized ones were found last winter on the surface, probably killed by the cold, because the pond was not deep enough. The reason it was not deeper is because muskrats persist in digging holes through the bank. The soil is also of such a nature between the pond and creek that the water slowly oozes out, and the pond gets very low unless we have very frequent rains.

HOW TO MAKE FOUNDATION.

Your article on page 513, "How to Make Foundation," is quite acceptable; and although we have always been very careful about keeping our mills free from every particle of wax, the way to do it best has been another thing; and the way to regulate the temperature of the dipping-tank is another. We have had very hard work to get sheets at all; the wax in the tank will get too cold around the outer edges or side of the tank before it is anywhere near cool enough in the center, and consequently the sheets all crack in the center of the boards, while they stick at the outer edges. Now, in this case we have set the tank on the stove and remelted the outer edges of it again, and it sometimes helps the dipping; but we have never been able to get sheets as thin as they ought to be for sections. Do we have to get the wax the right heat by heating and cooling it in this way? or ought the tank full of melted wax to cool all through alike by just setting it off and letting it set until ready to dip? There is something about the way we manage it that is not just right; and if you can give us some light on the subject it will help us wonderfully. Can we use these same boilers where we have a two-horse engine to furnish steam with? We have had all we could make in this way; but our section fdn. does not *quite* suit us.

Roland Holmes.

Ft. Wayne, Ind., June 28, 1886.

Friend H., if I understand you your whole trouble seems to be that you do not set your tank of melted wax inside a tank containing water, to be kept at a proper temperature by means of a steam-pipe. A very small steam-pipe from any kind of a steam-boiler will enable you to keep the temperature of all your utensils just where you want it. During the past season we have made quite an improvement by keeping all of our wax sheets, when ready to roll, in a large oblong tin vessel of water. A steam-pipe goes into this water; and by opening or closing the valve we can keep the sheets just right, no matter whether the weather is cold or warm.

WEEPING LINDEN FOR HONEY; PROLONGING THE BASSWOOD BLOOM.

I send you to-day by mail from Detroit some flowers of the *weeping linden* (*Tilia alba pendula*). I hope they may reach you in some kind of order, so that you may be able to scent the perfume, which is very delicate and powerful. The tree I have hangs over the sidewalk, and every one almost who passes stops to find where the perfume comes from. The American linden (basswood), blooms here about the middle of June; the English, or European linden, toward the last of June, and the weeping is now in full bloom. The white-leaved European also blooms in July, and the broad-leaved European (*Blatiphylla*) blooms in August. By planting all these varieties, the blossoming of the linden could be extended three months. Of course, some of them are scarce yet; but young trees, one or two years, could be imported cheaply from Europe. I imported both the English and the weeping from England some years ago.

James Dougall.

Windsor, Ont., Canada, July 9, 1886.

TOBACCO COLUMN.

A FRIEND'S INFLUENCE, ALSO A KIND WORD.

The goods arrived on the 26th of April, and in splendid order. I have put the chaff hive together. It is the first of your style I ever saw. I am highly pleased with all the goods. I have a bee-keeping friend (a young man like myself), for whom part of the goods were, who has quit the use of tobacco. Can you send him a smoker? If he begins again, I'll see that you get your money. Thanks for extras in goods.

Alvin L. Heine.

Chandler, Ind., May 5, 1886.

I saw your offer in Gleanings, that any one who quit the use of tobacco you would send him a smoker. If you will send me one, I will never use it again; and if I do I will send you a dollar for the smoker.

O. H. Martin.

Lee, Allegan Co., Mich.

Will you please send me a smoker? I have quit the use of tobacco; and if I ever take it up again I will pay you for the smoker.

W. E. Grindle.

Bluehill, Me., June 28, 1886.

I have been a user of tobacco four years, and have quit its use. If I deserve a smoker, send one; and if I ever use tobacco again I will pay you for it.

Fremont, Mich. William Gould.

Please send Henry Powell a smoker. He has agreed not to use tobacco in any way; and if he will he will pay you for his smoker. He asked me to write to you.

Reese Powell.

Linden, Iowa Co., Wis., June 13, 1886.

I sold a colony of bees to a young man who has been using tobacco. He has quit, and now he wants a smoker; he promises to pay for it if he ever commences to use tobacco again.

F. A. Durrand.

Esdaile, Pierce Co., Wis., May 29, 1886.

HAS COMMENCED THE USE OF TOBACCO, BUT PAYS UP LIKE A MAN.

I herewith send you 50 cts. to pay for a smoker that was presented to me for quitting the use of tobacco. I now have taken to the use of it again, on account of my health.

Anonymous.

June 10, 1886.

I am very sorry, friend A., that you thought it necessary to use tobacco again. Are you *sure* that your health demanded it?

After using tobacco for seven years I have quit. If you think I deserve a smoker, I shall be very thankful; and if I ever use tobacco again I will pay you for the smoker. I am a reader of Gleanings, and I think it is second to none.

Fremont, Mich. Robert Ashcraft.

A NEIGHBOR'S INFLUENCE, AGAIN.

I have a neighbor bee-keeper who has used tobacco for years, and has quit. I told him if he would quit and not use it any more, and promise you so, you would send him a smoker. He told me to send. Now, if he don't stay quit I will pay for the smoker, for I have to take care of his bees, and it is not convenient to carry his smoker; but I think he will stick.

John Barlow.

Sac City, Iowa.

THE DUTY OF A FATHER TOWARD HIS SONS.

The boys here use a great deal of tobacco. My two little ones were using it before I knew it. I have induced both to quit. The youngest is not at home. I did not see your offer, but I see the letters. If E. L. Goodbar is entitled to a "smoker," please send it; and if he ever begins again I will pay.

A. C. Goodbar.

Lonoke, Lonoke Co., Ark., June 7, 1886.

THE USER OF TOBACCO AN UNCONSCIOUS SLAVE.

I wish to say to you and everybody that I have quit the use of tobacco since I commenced taking Gleanings. I have used the weed for 15 years, and little did I know what a slave I was to that poisonous weed till after I quit. Nor does any man, who is in constant use of tobacco, realize what a slave he is until he tries to quit. I find that saying and doing are two different things; and when a person says he is going to quit the use of tobacco, he wants to make up his mind that he has got to exercise some will power. If you think I am entitled to a smoker, send me one; and if I commence the use of tobacco again I will pay you for it.

A. B. Holbrook.

Point Peninsula, Jeff. Co., N. Y., June 3, 1886.

OUR HOMES.

I will be their God, and they shall be my people.—JER. 31:33.

I AM invited to meet a body of bee-men to see the Chapman honey-plant in full bloom in York State; and as it is somewhere near father Cole's "Home on the Hillside" I propose to see the "New Agriculture" also, and so off I start this Monday morning, July 26. My first move is to call at the Town-Hall and be one of the first to cast a vote for the closing of the saloons in Medina. Thank God that I have at length that privilege, as one of his people, as in our text.* Then Maud takes me in the buggy to a station 12 miles away. Maud is getting to be a horse-woman, and handles Meg nicely, even if the *men-folks* have let her run away so many times we feared she was spoiled. Meg went up to a watering-trough; and before I knew it Maud hopped out and let down the check, instead of letting me do it. She explained that Meg would put back her ears and bite at me if I went near her, and so I stayed in the buggy. Meg even *goes* better when Maud has the lines, and I begin to suspect there is a sort of freemason understanding between them. Perhaps Meg means to say by actions, "I have had too many masters; that is why I ran away so many times. I like Maud, and she likes me (she gives me my clover and things), and I want her to handle me." All right! I am quite willing, if you only make the train between you.

We pass through a small town; the storekeepers, grocers, etc., are sitting out on the walk in easy-chairs, waiting for customers. They might be doing worse; but ought any of God's people, in these days of such great possibilities, to be sitting and waiting for *any thing?* Why can't they jump up and push something! Farmers along the road, many of them, seem content to raise the same crops (no better) that they have done year after year. Why, I couldn't live if I were not pushing on to something new, as each season comes around. In regard to waiting for customers—how can great strong men sit and wait? I would a hundred times rather follow a plow or a cultivator than to sit before a store waiting for some one to come to be waited on.

Out of town we find great fields of tobacco. While I admire the soil, and the wonderful vegetable growth these plants are making with their broad green leaves as high as the fence, I can not see how any who call themselves God's people can give their best land, and their *very best manure* in raising a narcotic with which to poison their fellow-men. I know it sometimes brings money; but is *getting money* ever to come before *doing right!*

Maud remarks, that the tobacco-raisers never seem to have nice houses and barns, even if the business *is* profitable.

I bid good-by to Maud (and Meg) just ten minutes before train time, so Meg has held her reputation. It costs $1.25 per day extra to ride in a drawing-room car; but if I don't ride in such car I could not have the nice little table on which I am now writing to you. The roads are full of muddy water, and it is running down in muddy streams, all through Ohio and Pennsylvania, although I have not seen a drop of rain fall. Innumerable gardens flit by us, but nothing in any of them is ahead of our own at Medina, unless it is rutabaga turnips in Pennsylvania. Next year *I* will try raising some so early they may be a yard across in July. Buckwheat is looking finely with the recent rains. Some of it is already in bloom, but not a tobacco-plant is to be seen in the whole country.

Olean, N. Y., is an astonishment and a wonder. Huge oil-tanks, big enough to contain large buildings, cover the summits and sides of the hills, and dot the valley by the hundreds, and may be thousands. Surely this must contain oil enough to light the world; in fact, Olean takes its name from *oleum*, meaning oil.

This oil is one of God's latest and brightest gifts to light up "Our Homes" so beautifully and at so little expense. Does this also mean, "I will be their God and they shall be my people"?

Now the train clatters along part way up the range of hills, and a beautiful valley is spread out before us. Villages, with their clean white churches; shops and stores, and many pretty houses, with well-kept gardens, say again the thought expressed in our little text.

It has been raining, and so the white clothes are, many of them, still on the line, telling of patient, hard-working mothers, and of many little ones to be cared for. God grant the thought in all these homes may be, "They shall be my people."

I am much impressed with the looks of the country and people in the vicinity of Chautauqua; an atmosphere seems to pervade the whole country round about; *i. e.*, "I will be their God, and they shall be my people." Is this the effect of the Sabbath-school gatherings there? The fields are covered with beautiful grain and garden-stuff of all kinds.

The sight of Wellsville, Allegany Co., N. Y., with its beautiful residences and thriving business places, reminds me again of our text; and when I go into the house to sit down at the "Home on the Hillside" (after having explored said *hillside* pretty well) I discover a clean bright fire burning in the grate. As the air is a little bit chilly after the rain, and my feet are somewhat damp from my explorations over the soft soil along the hillside, the warmth seems quite comfortable; and then I discover that it is from natural gas.

"Why, dear friends, is it possible that this is natural gas, and nothing more?" And then I inquired, "And does it really give sufficient heat for the most severe winter temperatures?"

In answer to the question, the good lady of the house simply touches a lever with her foot, near the fireplace, and in a second every thing round about the grate is full of

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*On my return I learned that our people cast 355 votes for *no* saloons, and only 26 *for* saloons. My friends, have you done as well as that in *your* county-seat?

flame, and the heat pours forth in such a volume that I feel abundantly satisfied it is equal to zero weather. When the fire-bricks back of the grate began to look as if they would soon be red hot, another touch of the lever with the foot and the fire is as gentle in a second as a lamb.

Of course, I was up in the morning before anybody else (as usual), and the roaring of the fire, soon after, in the kitchen stove aroused my curiosity. Yes, they were getting breakfast with natural gas, in the same way; and when the breakfast was cooked, down went the heat instantly; no wood or coal to be lugged in; no ashes to be carried out, no smoke or litter. The stove looked as clean and innocent as if it were standing in a hardware store, nicely blacked up so as to show off to passers-by. This great and wonderful gift has all this while been slumbering in the bowels of old Mother Earth, waiting for the intelligence of man to let it out and do his bidding. Gas-pipes run along the streets of Wellsville, on top of the ground. There is no need of burying them, as the *gas* does not freeze up. "I will be their God, and they shall be my people," came into my mind again, and I wondered if the people in Wellsville and other towns in New York remembered to be thankful for this great blessing. I suppose they think of it after a while just about as we think of the blessings we enjoy in our own homes the world over.

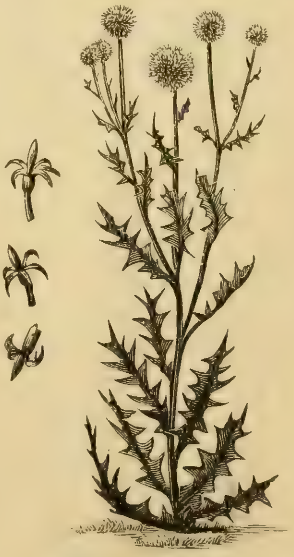
It is July 27th, in the afternoon, and I am waiting for the train at a country store. They said there was not any place to get supper at the station; but I almost always find suppers, and good ones too, and I did this time. One of the young men who clerked at the store invited me to go home with him to supper, if I would put up with what happened to be on hand. We had a very nice supper, including raspberries and cream, and ice-cream for dessert, even in an out-of-the-way country place. The grounds about *this* home were beautiful and tasty, and every thing bore evidence of culture and intelligence inside. I do not know that these people loved God, but I think they do, for many things seemed to say, "And they shall be my people."

Pretty soon a pair of horses drew up to the country store, attached to a somewhat odd-looking wagon. The wagon was sent by friend Chapman to get the bee-men who were to be at his convention the next day. Friend Chapman has a market-garden, so the storekeeper told me, and this was one of his *market-wagons*. Although he is not so much of a market-gardener as he used to be, he has, in years past, made lots of money in the business. I felt glad I had come.

The town of Versailles, Cattaraugus Co., N. Y. is a very pleasant and romantic spot. A great river pours over the rocks, and lulls us to sleep with its roaring. A large flouring-mill, right in the center of business, and many things about the town, reminded me of the village where I lived when a boy. In the evening, boys and girls collected about the postoffice to get the latest news. As a matter of course, the girls were dressed in warm-weather costumes, and some of them were very pretty; and as I listened to their laughing and chatting, I wondered if they, too, were Christians, and if they all went to a young people's prayer-meeting somewhere, every Sunday evening, or may be oftener. Do they ever think of the text I have been thinking of during all this trip? Were they, all of them, even the gayest among them, God's people?

Next morning, with Prof. McLain, our friend L. C. Root, W. T. Falconer, of Jamestown, N. Y., and some others whose names I have forgotten, it was my pleasure to go out among the honey-plants, even before the bees had commenced working. Friend Chapman is a genius, and, like many other geniuses is somewhat eccentric. He has about 175 hives of bees; and although he is progressive enough to have planted fully two acres of the Chapman honey-plant (with enough more that will have blossomed next year to make ten acres) he does not use a movable-comb hive—says he does not want any. Shall I tell you how he markets his honey? Well, he markets it a good deal the way he does garden-stuff. He has it stored in large boxes. He puts these boxes into his wagon, and drives to some town when there are many people on the streets. Then he cuts out his honey in chunks, puts 10 lbs. in one of a lot of cheap tin pans bought for the purpose, and tells the passers-by, "Here, you can have ten pounds of this beautiful nice honey, tin pan and all, for an even dollar." The price is so low, and friend Chapman is such an old hand at the business, that he sells out his whole load in a couple of hours, and goes home with his pocket full of dollars. It is cutting down prices, I know; but it is his way of doing. Well, I was a little incredulous about finding that 175 colonies could gather honey enough from two acres from *any* plant so the bees would store honey in sections. By the way, friend Chapman now uses one-pound sections in place of the large boxes he formerly used; but his hives are still box hives; that is, the brood-apartment is. The honey-plants stand in long rows, and are cultivated like other market-garden stuff the first year. When they first begin to bloom, but little attention is given them. The plant is so hardy that he says the drought killed all the weeds, but did not hurt the plant, and I guess he is right about it. They were growing finely on hard hillside gravel. Friend Chapman has, however, some beautiful land for market gardening, and I think he had the finest patch of cantaloupe muskmelons I ever saw in my life. Although there were several thousand hills, each hill was planted under a box perhaps a foot square and six inches high. Over this box a pane of glass is laid. Melons used to be one of his great specialties, before they brought in so many from the South; but he still makes considerable money from them yet.

At one side of the house, and near the street, I noticed, under a grove of maples, some queer-looking tables painted white. One table was square, with an opening inside, where a workman could stand; the other table was round, with a similar opening. Both tables were surrounded with beautiful maple-trees, evidently planted expressly for the benefit of the tables, for those around the square table were planted at regular distances, in the form of a square; those at the round table in the same way, only they were in the form of a circle. Some of these trees were eight or ten inches in diameter. Friend Chapman remarked, in answer to the question, that these tables were for washing and packing garden-stuff. They did excellent service on this 28th day of July, for our bee-convention. Seats and chairs were arranged for the company. Sections of honey, gathered from the Chapman honey-plant, were on the tables—enough for all. An organ placed on the porch, a little on one side, was well supported by singers of no mean talent; and between the speeches we had good music. The audience was mostly composed of the people from the country round about—friends of Mr. Chapman, and anybody who cared to come, who had heard of his famous honey-plant. Prof. McLain spoke first, and gave us many facts that were new and valuable. He is employed by the U. S. government, as you may know, to investigate and develop whatever is worthy pertaining to bee culture. Our friend L. C. Root also gave us one of his happiest talks, and I felt sorry all through it that we could not have had a shorthand writer to give it in full to our nation of bee-keepers. Your humble servant spoke briefly between the two. He tried to tell the people of God's various gifts to mankind; of the honey to be had for the gathering; of the fruits of the soil, and, later, of the oil and gas, of which I have spoken before, and finally of the new honey-plants that bear honey of such quality and quantity that it will pay to raise them for the honey alone. I spoke of the way in which God seems to call us to exercise our talents and abilities in different fields, and of the peculiar way in which these calls sometimes come. Friend Chapman, with his oddities, feels called upon by some invisible power to use his rare skill in market gardening, toward introducing and disseminating this wonderful new honey-plant. Prof. McLain had told us that its name is *Echinops sphærocephalus*, signifying "round - headed hedgehog," and that the place of its nativity was in the south of France. How should it come here? Even friend Chapman could not tell us, further than that he presumed it was among some specimens he had collected while on a visit to Florida or the Bermuda Islands. While traveling it had been his habit to save specimens of plants. Well, after these dried-up specimens had lain a long time in an old sack in the garret, or some such place, Mrs. Chapman suggested, like a good housewife, that it might as well be thrown away or burned up. Accordingly the sack was turned inside out, and shaken on one corner of the garden. Finally this queer plant came up, and friend Chapman noticed how eager the bees were to visit it. Mr. Hubbard, a neighbor of his, who has been assisting him in his experiments with his honey-plant, told us, in a brief little speech, that he just counted, for an experiment, the bees that visited a single ball of the Chapman honey-plant during just one day. How many bees do you suppose came to this one blossom, or ball of blossoms? Well, *it was 2135.* Of course, an assistant watched the blossom while he got his dinner and supper. To further test the quantity of honey secreted, some paper bags had been tied over the blossoms, two days before the convention. These papers were taken off, and the balls seemed as if they had been dipped in honey —good thick honey too. Since coming home I have tried the same experiment. The honey, as it first oozes from the nectaries, is first thin, like sweetened water; but during 48 hours of our hot July and August days it becomes as thick as honey in the comb. The flavor is a very pure sweet—much like simple syrup, only it has a slight flavor, which we all pronounce very pleasant. I think it will rank equal to white clover or linden. In closing my talk I spoke of all these valuable qualities belonging to this plant, and repeated my text in connection with the thought of God's promises and purposes to us his children. As friend Chapman has expended a good deal of money experimenting with this plant, he prefers to control the sale of the seed—at least for several years. This year it will be offered in packages of half an ounce each for $1.00. No smaller quantity is to be sold. Below we give a cut of it.



CHAPMAN HONEY-PLANT.

In regard to the above plant I submit the following letter from friend Cook:

Dear Mr. Editor:—You will remember that Mr. Chapman, of Versailles, N. Y., exhibited at the Detroit meeting a honey-plant which he said commenced to bloom just at the close of the basswood season, and was of rare excellence as a honey-plant, both as regards quantity and quality of honey which is furnished. Upon examination I found this to be *Echinops sphærocephalus* of Central France. I am indebted to Dr. W. J. Beal for the determination. Through the kindness of Mr. Chapman I secured a number of the plants in the spring. These were set out the last of April; and though the season has been terribly dry they have grown on light sand most vigorously; are magnificent plants, and are loaded with globe-like flower-heads. The plant looks some like a thistle, as we might expect, as it is a composite plant. The flowers opened July 20, and each ball has a great many flowers, each of which must be visited many times a day by the bees; indeed, the flowers are alive with bees from early morn till late in the evening. Surely this thing of beauty is a joy in a double sense. A. J. Cook.

Agricultural College, Mich., July 23, 1886.

The name is from the Greek, *echinops* signifying hedgehog, and the plant is almost exactly like a big thrifty thistle, only it bears round balls, as seen in the engraving. The latter part of the name means "round-headed." Now, if this plant furnished honey right along, day after day, for as many months as the figwort does, it would probably, be ahead of any plant known on the face of the earth. The spider-plant furnishes a larger quantity of nectar, but it is secreted only in the night, and gives us nothing in the daytime. It is also so thin and watery that the amount of saccharine matter is probably not as great as in the Chapman plant The Chapman plant yields honey about 20 days; but by mowing off the tops it can easily be made 20 days later; it is also much hardier than the spider plant, and would probably grow on poor soil where even the figwort would not amount to much. There have been more bees at work on our patch of figwort for the last 60 days than I I ever saw anywhere on the Chapman honey-plant; but the honey is not nearly so thick as that from the latter. It may be a nice point to determine which plant would be most profitable. The Chapman plant will continue to blossom and yield honey for three years, after it is once started. Dr. C. C. Miller, who has experimented considerably, can probably aid us right here; and in any case we can thank God for this new revelation in regard to the possibilities of cultivating plants for honey alone. Of course, friend Chapman's bees were not *all* at work in sections; but colonies having young queens just commencing to lay were storing at a pretty fair rate, and the sections of honey placed on the table for examination were taken from one of these colonies.

The social element at friend Chapman's model bee-keepers' convention was a decided success; and I echoed the thought of our friend L. C. Root, that it would be an excellent thing if we could have more just such informal open-air meetings of bee-keepers. "By this shall ye be known of all men, that ye have love one to another." And how better can we demonstrate to the great Father above that we are trying to look up in the spirit of our text to-day than by showing our good will to each other? "I will be their God, and they shall shall be my people."

The Iowa State Bee-keepers' Association will meet on the Fair-grounds in Des Moines, on Tuesday, Sept. 7, 1886, at 2 P.M., continuing in session during that and the following two or three days A large and substantial tent has been secured, and is now at hand, for the use of the society. Any or all of the 6000 bee keepers of our State are urgently requested to be present and help make the meeting a pleasant and profitable one, and a hearty invitation is extended to all visiting brothers from other States. O. O. Poppleton, Pres.

A. J. Norris, Secretary.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, AUG. 15, 1886.

No good thing will God withhold from them that walk uprightly.—Ps. 84: 11.

USING FULL SHEETS OF THIN FOUNDATION FOR SECTIONS.

D. A. Jones says, in the *C. B. J.* for July 28:

> Those who have not used full sheets of section foundation in their sections, should try it and observe the difference in quantity of honey secured. Our experiments have fully convinced us that sections should contain full sheets; and with the beautiful light section foundation we are now making there is no danger of any backbone in the comb honey.

In *Scribner's Magazine* for Nov., 1875, is an interesting article on long life, and from it we quote the following lines:

> Democritus, Pythagoras, and Pliny, trace their length of days to the use of oil without and honey within. Two persons in modern times are mentioned as having lived to the ages of 108 and 116, who, during the last half-century of their lives, for their breakfast took only a little tea sweetened with honey.

REDUCTION IN THE PRICE OF EXTRACTED HONEY.

For the first time in our recollection, we are able to furnish a nice article of extracted honey for 8½ cts. per lb., package included, providing a 58-lb. package be taken at one time; and for two such packages we can make the price only eight cents. We make this discount on two, because two of our square honey-cans ship so nicely in one case. For 10 cases, 20 cans in all (1160 lbs.), we will make the price at only 7½ cts. per lb. This is for the best quality of "Western Reserve" clover honey. For basswood honey, equally good in every respect, the only difference being in flavor, the price will be ½ cent less. Now, then, if honey can not be used at this price, in localities where it is scarce, I shall be much mistaken.

ANOTHER SERIES OF THE WATERBURY WATCHES.

The first gross of series E is now on our hands. While the watches are better made than any heretofore, there has been a reduction in price, so that we can furnish single watches by mail, registered and postpaid, at $2.75; two watches as above, at an even $5.00; five or more watches by express, for $2.20 each. If ordered by mail, in lots of five, add 45 cents for postage and registry; or we will send a watch postpaid, and Gleanings one year, for $3 00; or a watch will be sent free as a premium for 5 subscribers. Of course, Waterbury watches are *liable* to fail, like all other pocket timepieces; and it would be natural to suppose that, if they are furnished at such *extremely* low figures, they could hardly be expected to do as well as watches costing $10.00 or more. We think, however, that the cost of keeping them in repair is, as a rule, much less than with any other pocket timepiece at *any* price.

THE OLD AMERICAN ZINC, AGAIN.

Although the great majority have reported favorably to the perforated zinc of our manufacture, some few have claimed that the queens passed through, and that they preferred the old *American zinc*, made in Chicago, which has the rounded-end holes. For the accommodation of all such, and those who wish to experiment with it, we have purchased a lot of 1000 ft. of this zinc, in sheets 28 x 96 inches, which we can sell @ 12 cts. per ft.; $2.00 per sheet (18⅔ ft.); 5% off for 2 or more sheets; 10% off for 10 or more.

HUMBUGS AND SWINDLES, AND THE "GOLDEN" BEE-HIVE.

On page 480, in our issue for June 15, we published a communication from H. W. Carman, reflecting somewhat on one A. J. Carman. We are informed that both of the gentlemen mentioned there, Hardaway and Carman, are good reliable men. We are glad to know this; but it is not at all surprising that good and reliable men have been drawn into investing in a patent-right bee-hive. Many of our older readers will remember that N. C. Mitchell's strong plan of operations used to be to induce a minister of the gospel, or some professional man, into becoming one of his agents, and then he would straightway get out his advertisements, bolstering up his bad name by having some good man's name coupled with it.

Moral.—Be careful how you let your good name suffer by being linked with any thing disreputable.

THOMAS HORN.

Mr. Horn has been filling orders, to some extent at least, since our last issue, for we have had reports from three or four, to the effect that they had received their bees or queens. A still larger number, however, complain that he has done nothing, and does not answer letters. In one case, where he wrote positively that the bees had been shipped, the express agent at his place declares that no such shipment was made at all. He also fails to meet his promises in regard to the payment of money. When we received Mr. Horn's advertisement we had what we considered satisfactory reference and evidence that he was a straight man; but as soon as we had reason to think he was not acting in an honorable way we refused to continue his advertisement, and promptly gave the public notice. Perhaps we may gain a moral from the whole matter something like this: Do not be in a hurry to send very much money to those who start up suddenly, and promise great things in their advertisements, such as prepaying express charges, etc. Better pay a little more, and deal with those who are old and well established in business.

GOODS NEAR YOUR HOME, AT A REDUCTION FROM REGULAR PRICE.

We have the following lot of goods at the places named, for which we want customers. Now, it is altogether likely that there is some one located not very far from where these goods are who will be needing just such articles, especially if he can get them a little lower than the regular price, and doesn't have to pay much freight charges on them. In hopes that there are such persons, we append a list of the articles for sale, giving the present value of the goods and the amount we will take for each lot entire. We give a number to each lot, and the name of the place where they are being held, subject to our order. Remember, they are all perfect goods, just as fresh and new as if shipped from here. Remember, also, that at the price we offer them we can not break lots; each lot must go entire. In making your orders, please give the number of the lot as well as the articles contained in it, and thus help us to avoid mistakes.

No. 1.	Aplington, Iowa.	Ten 2-story portico hives, complete, in flat, for comb honey, including m. c. frames, wide frames, sections, separators, thin fdn. for sec., 7 lbs. brood fdn., and enamel sheets. The lot foots up to $25.30. We will sell it complete for	$22 00
No 2.	Union City, Ind.	13 combined shipping and honey crates flat; 99 tin separators for above crates; 26 pieces glass for above crates; 10 metal cornered brood-frames in flat. Present value, $4.50; will sell for	4 00
No. 3.	Clay City, Ill.	3000 sections, one piece, V groove, 4¼ x 4¼ x 2 in. wide. Present value, $12 00; will sell for	10.50
No. 4.	St. Joseph, Mo.	10 Simp. hives, made to take crosswise Simp. frames, of No. 1 stock boards, in flat, no inside furniture. Present price, $6.16; will sell for	5 00
No. 5.	St. Paul, Mo.	28 48-lb. shipping and retailing cases, in flat, without glass. Worth $5 04; will sell at	4 80
No. 6.	Lock's Mills, Maine	One roll poultry netting, 4 ft. wide, 150 ft. long; 2 in. mesh; No. 19 wire. Regularly sold for $6.09; will take $5.80 for it.	
No. 7.	Nassau, N. Y.	200 wide frames, for 8 1-lb. sections, in flat. Worth $4 00; will sell for	3 75
No. 8.	Riverside, N. J.	750 1-lb. 7-to-foot sections. Worth $3.00; will sell for	2 75
No. 9.	North Walton, N. Y.	100 metal-cornered frames, in flat. Present value, $2.50; will sell for	2 50
No. 10.	Poughkeepsie, N. Y.	100 1-lb. honey-tumblers. Present value, $3.00; will sell for	2.75
No. 11.	East Otto, N. Y.	1000 1-lb. 1-piece 7-to foot sections. Value, $4.00; will sell for	3.75
No. 12	Caribou, Maine.	900 sections, 4½ x 5 x 1 7/16 wide, open on all four sides. Present value, $4.50; will sell for	3.50
No. 13.	Canal Fulton, Ohio.	Eight chaff hives, complete, for comb honey, in the flat. Present value, $24.00; will sell for	22.00
No. 14.	Delaware, Ohio.	35 bottom boards for Simp. hives; 210 tin separators for combined crates. Present value, $8.75; will sell for	7 50
No. 15.	Foster Brook, Pa.	100 wired m. c. brood-frames, in flat, including wire and tin bars. Present value, $3. 00; will sell for	2.75
No. 16.	Johnson City, Tenn.	One No. 7 honey-extractor, with basket, only 15 in. deep. Present price, $8.00; will sell for	6.00
No. 17.	Cairo, W. Va.	One 2 story Simp. hive, rigged complete for comb honey, and 5 lbs. fdn., ½ thin, for sections, and ½ for L. frames. Present value, $5.25; will sell for	4.75
No. 18.	Elmira, N. Y.	One 2-H. P. engine and boiler complete. This has been used some, but has been put in as good shape as when new. Price of a new one, $175.00; will sell this for	$150.00

OUR OWN APIARY.

FOUL BROOD AGAIN, AND HOW WE ARE HOLDING IT IN CHECK.

From various letters that we have received, and from further experience with the disease, we feel pretty well convinced that we have been fighting the real foul brood, so called. Our friend Milton Hewitt, of Perryopolis, Pa., however, who had some sad experience with a different phase of diseased brood (page 699, 1885), is of the opinion that our colonies are infected with the same disease which attacked his bees. Speaking of the characteristics as observed in this type of affected brood he says:

1. "That the disease is not contagious by contact, or by introduction of bees, honey, comb, brood, etc.

2. "That the infection is transmitted by the fertilization of the queen by a drone from a diseased hive."

He further states, that the removal of said queen, and the introduction of new blood, cures the affected colony.

In regard to this I will say, were this form of the diseased brood present in our own apiary we should expect about one-fourth of our brood-combs fit subjects for the furnace. Whenever we have introduced queens from foul-broody hives into other colonies we have yet discovered no instance where they transmitted the disease. On the contrary, as we should expect with foul brood, the larvæ of said queens are not as yet affected; but we have found, and that to our sorrow, that *honey* from diseased colonies gives the disease. It is a well-known fact, that bees from neighboring colonies intermingle to some extent, and that, in consequence, some little honey would be exchanged. Now, wherever we have found one diseased colony in our apiary we have invariably found four or five other diseased colonies neighboring and adjacent to this one, showing that the disease was transmitted by the honey, and proving the old statement that foul brood is a disease of the honey.

Since our last report, several more cases of foul brood have appeared in our apiary, and the number of diseased combs now cremated in the boiler-furnace is 126. Whenever traces of the disease have developed, the colonies so affected have been treated as described upon pages 610 and 630, just as soon as discovered; no matter whether the colony was so badly diseased as to emit the foul-brood odor at the entrance, or so little affected as to reveal only an occasional diseased cell, the manner of cure was the same.

Some have made an outcry against the seemingly needless and wanton destruction of so many combs. I shall have to reiterate that new frames of foundation are not only cheap but safe; that, while we do not decry the use of salicylic acid as a disinfectant of foul brood, or the trying-out of the affected combs, we *do* know that the absolute cremation and destruction of combs affected by foul brood is sure to prevent the further spread of the disease from said combs. Furthermore we can not afford to run any risks by experimenting upon the more lenient measures recommended for cure, when so many colonies are at stake.

I am glad to say, that, when the apiary was last gone over, no trace of the disease appeared. If it shall not again break out, then we shall feel that we have employed the cheapest way of fighting the disease, and that there is nothing like "nipping it in the bud." But, hold! a prominent bee-keeper and apicultural writer has just written us, expressing his regrets that the dreaded foul brood has at last visited us. He says, "I am very, very sorry to hear that you have foul brood in your apiary, knowing as I do what a terrible thing it is." In spite of all the skill he could bring to bear he has had fully 75 cases during this and the previous season, and, as a matter of course, he has had to discontinue the sale of bees, as we have done. Surely, there are not many crumbs of comfort in this for us. If, however, we shall cure the further ravages of foul brood, and thereby be enabled to instruct our fellow bee-keepers how to detect the presence of the disease, and how to cure it without the usual sacrifice, we shall feel ourselves amply repaid; and instead of a misfortune, a visitation of the all-seeing Providence.

SHALL WE PURCHASE SUGAR OR CHEAP HONEY TO FEED OUR BEES THIS FALL?

This is a question that has been asked many times; and many, no doubt, since this matter of foul brood has come up, have decided in favor of the sugar. As already stated, we feel pretty certain that the disease originated in our apiary from honey that we purchased. We can assign no other reasonable cause. I was talking with a bee-man who made us a visit the other day, and who said that he had intended this fall to buy cheap honey and feed it to his bees; but that, since we had come out so frankly, stating the probable cause, he had decided to feed sugar. No, sir; we may talk about feeding bees their own "pure sweets," the folly of purchasing sugar at the expense of the honey-trade, and all that sort of thing; but if we purchase cheap honey of a doubtful or unknown source, we are running a risk. It is true, we may boil all such honey to kill any possible germs of the latent disease; but that would be attended with some little expense. Of course, if you have honey of your own raising that you know is good, that is another matter; but if you purchase honey to sell again, store it away where the bees can by no possible means get a taste of it.

SENDING FOUL BROOD BY MAIL FOR PURPOSES OF EXAMINATION.

At different times we have had samples of affected brood sent us for our examination, accompanied by a letter of inquiry as to whether the sample was a real case of foul brood. While in our individual case we do not fear any infection to our bees (as immediately after examination we always "hist" it into the boiler-furnace), yet, in the minds of all carefully disposed bee-keepers, we think the practice in general would be condemned. Some one less careful, and not knowing the real danger, might do our fraternity a vast deal of harm. This would apply to the one sending the specimen, as well. If I am correct, Prof. Cook, in his books, has cautioned his readers against sending such samples by mail. If any of you have a great curiosity to *see* and *smell* foul brood, you had better be content with what you can gain from the pens of others less fortunate, or you will think it is a real case where "ignorance is bliss 'tis folly to be wise." ERNEST.

FARM OF 57 ACRES,
AND APIARY OF OVER 100 COLONIES
OF BEES FOR SALE.
15tfdb GEO. A. WRIGHT, GLENWOOD, SUSQ. CO., PA.

FOR SALE.

One Barnes combined circular and scroll saw, size of table, 26x36, including 13 circular saws from 3 to 8 inch; 11 scroll saws; 2 mandrels; one 6 in. emery wheel; 1 cutter-head; 1 saw-set; all in good running order, except some of the saws may want filing. Will sell the above machine with all the attachments for $35.00 cash, delivered on cars, which is about half price.

Address **S. H. WINCHESTER,**
16d **Elmore, Peoria Co., Ill.**

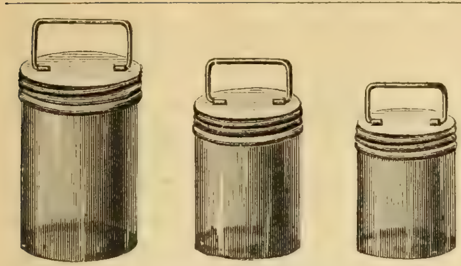
PREPARE FOR WINTER.

We have unequaled facilities for manufacturing the Root chaff hive at a great reduction from ruling prices. Mr. Zeno Doty, Grafton, Neb., writes July 9th, "Your material, make, and price is far better than I can get anywhere else. Send for price list and special prices for this fall. 16tfdb

A. F. STAUFFER & CO., Sterling, Ills.

For Sale. COLONIES, NUCLEI, and QUEENS, AT LOWEST PRICES.
11-16db GEO. D. RAUDENBUSH, READING, PA.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.



GLASS

HONEY-PAILS CHEAPER THAN EVER.

In retailing honey, as in selling almost every thing else, there is nothing that pleases customers more, or secures quicker sales, than a good article put up in neat and tasty packages. For extracted honey in small quantities for a "lunch" or "picnic" it seems to me nothing is more handy, or will "take" better than these glass pails. They are made of flint glass, as clear as crystal, so that the customer can readily see just what color the honey is which he is getting. The top screws on securely; and, better than all, it has a handle to carry it by so that you may always have it right side up. Moreover, the manner of attaching this wire handle to the tin cover has been improved by soldering on the tin clip holding the handle, instead of cutting a hole in the cover and bending over the points on the inside. By buying a very large quantity of these pails direct from the manufacturers we are able to offer them to you, in lots of 100 or over, cheaper than we have been able to get them from wholesale glassware men in lots of 1000. Here are our reduced prices, free on board cars at Medina:

	Each	10 rates	100 rates	1000 rates.
½ lb.	5 cts.	40 cts.	$3.50	$32 50
1 "	5 "	45 "	4 00	37.50
1½ "	6 "	55 "	5.00	47.50

These pails are packed 100 in a barrel; and at these close prices we can not give 100 rates on less than 100 of one size, as it would necessitate repacking. **A. I. ROOT, Medina, Ohio.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

---

ATTENTION, BEE-KEEPERS!

Now is the time to Italianize cheap. Having all my orders filled to-date, I will sell fine queens, from my well known strains, at the following very low rates.

1 queen,	$ .80	1 tested queen,	$1.50
6 "	4.50	6 " "	8.00
12 "	8.00	1 select tested queen,	2.00

Safe arrival of all queens guaranteed, and queens sent by return mail. Address

16tfdb **WM. W. CARY, COLERAINE, MASS.**

---

2 H. P. ENGINE FOR SALE.

We have at the factory in Elmira, N. Y., a 2 H. P. engine and boiler that has been rigged up exactly as good as new in every respect. It ought to bring full price of a new one, but in order to get it off our hands we offer it for $150.00.

A. I. ROOT, Medina, O.

VERY LOW.

I have a number of selected tested queens which I will sell for one dollar each. These will be fine queens to breed from, all reared this season, and guaranteed to satisfy all. I will also dispose of a few full colonies of pure Italian bees in Sept. and Oct., in new L. hives, at $7.00 each.

16-17d S. F. REED, North Dorchester, N. H.

THE AMERICAN APICULTURIST

Sent one year, and a tested Italian queen, to each subscriber; all for $1.50. Sample copies free.

15tfdb Address HENRY ALLEY, Wenham, Mass.

OHIO WESLEYAN UNIVERSITY

DELAWARE, OHIO. One of the great Colleges of this country, offers to both sexes, at surprisingly small expense, unsurpassed advantages for a full College Course or for Special Studies. **Collegiate, Preparatory, Normal, Commercial and Art Departments. First-class Conservatory of Music.** Elegant home for ladies with teachers. **Necessary expense for a term, only $50 or less.** Catalogue free. **C. H. PAYNE, LL. D.,** President.

HARRINGTON'S AD.

BEES CHEAP!

I have the finest lot of Queens and Bees I have ever raised in my 13 years' experience, and should like to have everybody see them. I will sell at following low prices:

SELECT TESTED (VERY FINE) ***$2.00***
TESTED - - - - - - - ***1.00***

My Queens are nearly all mated with drones from an imported Italian Queen. Half-blood Holy-Lands, Cyprians, and Albinos, at same price.

H. B. HARRINGTON,
May 26, 1886. Medina, O.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

---

ONE-DOLLAR QUEENS.

I will give you a printed guarantee of purity of every untested queen sent at $1 each before Sept. 15.

14 16db J. B. HAINS, Bedford, Cuyahoga Co., O.

QUEENS.

I have them, bred from a best selected queen of Root's importation, 90 cts. each; 6 for $4.50. I can give all orders immediate attention, and ship by return mail. Send postal for dozen rates.

10tfdb **B. T. BLEASDALE,**
596 Woodland Ave., Cleveland, Ohio.

FOR SALE. I will sell full swarms of Italian bees during this month for $5.00 each; two for $9.00, or five or more at one order at $4.00 each. They are in new 10-frame L. Simplicity hives, and in good winter shape, ready to ship by return express; good covers and bottom-boards go with the hives. Safe arrival guaranteed. Send money by registered letter.

Address **M. R. NICHOLS,**
15tfdb **Weaver's Corners, Huron Co., O.**

---

100 GOLDEN ITALIAN QUEENS.

Cells taken from colonies that have swarmed. Warranted second to none in every respect. Should any prove to have mismated they will be promptly replaced with nice tested ones. I will ship next day after receiving order, if so desired. Price 75 cts. each; per doz., $8.00.

15-16d JAMES WOOD, North Prescott, Mass.

PURE ITALIAN QUEENS.

Tested queens, $1.50 each; untested, 70c each: 3 for $2.00; 5 for $3.00. All bred from a select imported mother. By return mail.

15tfdb D. G. EDMISTON, ADRIAN, LEN. CO., MICH.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey.*—We quote to-day's market on honey: Comb, choice white clover, 1-lb. sections, 10@12½c; choice white clover in 3-lb. sections, 9@11; other varieties of comb in 1 and 2 lb. sections, 8@10; broken comb, 5@7. Extracted, white clover, in tin cans, 6@7c; same in kegs, 5@6; white clover and other varieties of extracted and strained in bbls., 4@4½. Honey is moving very slowly, at even low prices. There is some demand for low grades for manufacturing purposes.

Beeswax.—Selected yellow, 25c; as it runs, 21@23c.

Aug. 11, 1886. WESTCOTT & HALL,
108 and 110 Market Street, St. Louis, Mo.

CLEVELAND.—*Honey.*—The market still continues slow and well stocked. Choice white 1-lb. sections sell at 14c with an inclination downward; as yet, however, no new honey has been sold at less than 14. New 2-lbs. dull at 12@13. Old stocks are neglected. Extracted, 6@7. *Beeswax*, 25.

Aug. 10, 1886. A. C. KENDEL,
115 Ontario St., Cleveland, Ohio.

DETROIT.—*Honey.*—The market for honey has improved a little since my last quotations. Best white, in one-pound sections, sells at 14c, and some in a small way at 15c. *Beeswax*, firm at 23c.

Aug. 11, 1886. M. H. HUNT,
Bell Branch, Mich.

MILWAUKEE.—*Honey.*—Market for honey is dull, and lower prices will have to be accepted, to sell. We will quote: Choice 1-lb. sections, white, 12@13c; choice 1½ and 2 lb. sections, white, 12@12½. Old, choice, in sections, 10@11. Extracted, choice, in bbls. and kegs, 5@6; same, in tin cans, 6@6½.

Beeswax, 24@25. A. V. BISHOP.
Aug. 11, 1886. 142 W. Water St., Milwaukee, Wis.

KANSAS CITY.—*Honey.*—The receipts of new honey are good, and demand the same. 1-lb. sections, white clover, 13@14; 1-lb. sections, dark, 10@11; 2-lb. sections, white clover, 11@12; 2-lb. sections, dark, 8@10; 2-lb. sections, California, white, 10@11; 2-lb. sections, California dark, 8@9. Extracted white clover, 5@6; dark, 3@4; California, 5@5½; dark, 4.

Beeswax, 20@22. CLEMONS, CLOON & CO.,
Aug. 11, 1886. Cor. 4th and Walnut St's.,
Kansas City, Mo.

BOSTON.—*Honey.*—New 1-lb. sections, 13@15; new 2-lb. sections, 12@14; new extracted, 6@8. *Beeswax*, 25 cents.

BLAKE & RIPLEY,
Aug. 11, 1886. 57 Chatham St., Boston, Mass.

NEW YORK—*Honey.*—There is no change in the honey market; still, there is some old honey on hand, almost unsalable at any price. We are receiving large shipments of California white-sage honey, extracted, in 5-gallon cans, 2 in case, which is sold at from 5@6c per lb. We have not received any new comb honey this far.

Beeswax, a trifle lower. Prime yellow sells at from 22½@24c. THURBER, WHYLAND & CO.,
Aug. 11, 1886. Reade & Hudson Sts., New York.

CINCINNATI.—*Honey.*—No change in the market; demand slow for all kinds and shapes of honey. Prices are nominal. Extracted honey ranges between 3½@7c per lb. on arrival, according to quality, and choice comb honey brings 14@15c in a jobbing way.

Beeswax.—Demand is good, and arrivals are fair. We pay 20c per lb. for good yellow.

Aug. 6, 1886. CHAS. F. MUTH & SON,
S. E. Cor. Freeman and Central Avenues,
Cincinnati, Ohio.

FOR SALE.—I have 400 lbs. of nice white-clover honey in 1-lb. sections, in crates containing 24 sections each, at 13c per lb., crates included, delivered on cars here. Also 50 swarms of bees, 20 in Root's chaff hive, and the rest in Simplicity hives—all very strong. J. D. STEDMAN, Charlestown, Port. Co., O.

FOR SALE.—I have 300 or 400 pounds of choice comb honey, put up in 24-lb. cases, which I will sell for 11c per lb. It is nice and white, raised with separators, and is first class in every respect.
WM. H. STANLEY, Dixon, Lee Co., Ill.

FOR SALE.—2000 lbs. clover honey in 1-lb. sections, large cases at 15c; and in small cases at 16c at our R. R. Station. O. G. JOSENHANS,
Owosso, Shi. Co., Mich.

FOR SALE.—2000 lbs. of nice white-clover and basswood honey in 1-lb. sections, put on board cars here for 13 cts. per lb. C. ABRAHAM,
Fayette, LaFayette Co., Wis.

FOR SALE.—I should like to sell 2000 lbs. of comb honey in one and two lb. sections. I will deliver it on the cars here for 12½ cts. a pound. It is nice white honey. F. ROULO,
Portville, Catt. Co., N. Y.

FOR SALE.—10,000 lbs. of nice white-clover and basswood honey, in one-pound boxes, 48 lbs. in case, delivered on board cars for 12c per lb. by the case, or 11c per lb. in 1000-lb. lots. EZRA BAER,
Dixon, Lee Co., Ill.

FOR SALE.—Friends, I have 1500 lbs. of beautiful honey in one-pound sections, in crates holding 11 and 12 lbs., that I will sell at 12½c per lb.; also extracted honey in 50-lb. kegs at 8 c, delivered on the cars. Cash with order. Reference given if needed.
W. S. DORMAN, Mechanicsville, Iowa.

FOR SALE.—1000 lbs. of white-clover honey, in 1-lb. sections. What am I offered? WM. VANAUKEN,
Woodville, Jeff. Co., N. Y.

FOR SALE.—5 barrels, of 170 lbs. each, one of 250 lbs., of basswood honey, well ripened; also 2 barrels of clover honey of 170 lbs. Will take 6 cents, barrel free, delivered on cars at Lynnville.
W. A. COMPTON, Lynnville, Giles Co., Tenn.

FOR SALE.—I have 1500 lbs. of comb honey for sale, 15 cts. for No. 1, 12 cts. for No. 2.
NELSON DEWEY, Adrian, Lenawee Co., Mich.

FOR SALE.—10 crates of comb honey, containing 36 pounds each, in one-pound sections, ready now.
MARCUS WIGHT, Bedford, Iowa.

FOR SALE.—Still having on hand in Root's beautiful 1-lb. sections some 2000 lbs. of white-clover honey, I offer the same at 14c per lb., packed in Heddon's shipping-cases, and put on board of cars.
JOHN ELLINGER, Hopkins Sta., Allegan Co., Mich.

WANTED.—From 500 to 1000 pounds of white extracted honey. What is your price, delivered at Malone? H. P. LANGDON,
East Constable, Franklin Co., N. Y.

WANTED.—I have a place for a few tons of clover honey, *white;* can pay N. Y. quotations—5c, put up in bbls. of from 300 to 500 pounds each, F. O. B., anywhere in Ohio or this way from there.
F. D. WOOLVER, Munnsville, Madison Co., N. Y.

FOR SALE. PURE ITALIAN Bees & Queens.

Untested queen, $1.00; two or more, 75 cts. each. Tested queens, $2.00 each. Full colonies, in Simplicity hive, with tested queen, from $4.00 to $10.00. Three-frame nuclei, with untested queens, $2.00; with tested, $3.00. For July, August, September, and October, address or call on

Residence, Little Muskingum. BENJ. J. COLE,
16d Marietta, Wash. Co., O.

FOR SALE CHEAP.

Fifty 2-story Simplicity hives, nailed and painted; 100 2-story Simplicity hives in flat, and 10,000 brood-frames. For particulars address
16d O. H. HYATT, Shenandoah, Iowa.

Pure Italian Queens.

I have purchased the entire stock of bees of Mr. L. L. Langstroth. I will sell queens from natural swarming, at 80 cents each, or six for $4.00. Safe arrival guaranteed.

MERICAN STIBBENS,
15d Oxford, Butler Co., O.

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CONVENTION NOTICES.

The annual meeting of the Western Bee-keepers' Association will be held in Pythian Hall, corner of Main and 11th Streets, Kansas City, Mo., Oct. 27, 28, 29, 1886. P. BALDWIN, Sec.

The Willamette-Valley Bee-keepers' Association will meet at the Grange Hall, in McMinnville, Ore., Sept. 21 and 22, 1886. All interested are invited. E. J. HADLEY, Sec.

The Iowa State Bee-keepers' Association will meet on the Fair-grounds in Des Moines, on Tuesday, Sept. 7, 1886, at 2 P.M., continuing in session during that and the following two or three days. A large and substantial tent has been secured, and is now at hand, for the use of the society. Any or all of the 6000 bee-keepers of our State are urgently requested to be present and help make the meeting a pleasant and profitable one, and a hearty invitation is extended to all visiting brothers from other States. O. O. POPPLETON, Pres.
A. J. NORRIS, Secretary.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

FOR SALE.—Pasteboard boxes for inclosing section honey. The best out! Improved over last year. Thousands sold! Price, 1-lb. size, $6.00; 2-lb., $8.00 per 1000. One sample, 5c. 14-oz. square glass jars, $5.00 per gross; 1½ gross in case. Fine assortment of honey labels. Catalogue free.
14-17db A. O. CRAWFORD, S. Weymouth, Mass.

WANTED.—To exchange best drone-traps made for one or more extractors, Simplicity frame. Send for circular.
15tfdb J. A. BATCHELDER, Keene, N. H.

WANTED.—To exchange for comb or extracted honey, cash or offers, 15,000 pot-grown strawberry plants of the best varieties; also game cocks. Can give best reference. GEO. M. WERTZ,
15tfdb Johnstown, Cambria Co., Pa.

WILL sell for cash or give in exchange for good horse, 25 colonies of black, hybrid, and Italian bees, in S. hives, on 5 frames brood each, at $5.50, $6.00, and $6.50 respectively. Will ship long as weather permits. 16-21db J. A. KIME, Fairfield, Adams Co., Pa.

FOR SALE.—A two-story brick house, with five lots, good barn, ice-house with cooling-room, bee-house, honey-house, wood-house, etc. Grapes, berries, apples, and cherries on the place; in small town, location suitable for bee or chicken business. Will sell cheap for cash, or exchange.
15-18db ANABEL RONALD, Grand View, Iowa.

WANTED.—To exchange bees for grapevines and fruit-trees, or good watch.
17d H. BARBER, Adrian, Len. Co., Mich.

WANTED.—To buy a farm and apiary. Give honey resources, and distance to school, church, and R. R. station. Address E. S. ARWINE,
17-18d Patterson, Waller Co., Tex.

WANTED.—To exchange bees by the pound, nucleus, or full swarm, for any thing I can use in the apiary; or a male Poland China pig; or for cash. Write for prices and make offers.
16d LUTHER PURDY, Killbuck, Holmes Co., O.

WANTED.—To exchange one 3-oz. silver openface watch, nearly new, and warranted, 11 jewels, for best offer of comb or extracted honey, or offers. CHAS. L. HILL, Dennison, Ohio. 16tfdb

WANTED.—To exchange for cash, pure Pekin ducks, $2.50 per pair (duck or drake), or $1.50 single one. CLARENCE W. BOND,
17d (P. O. Box 1338.) Jackson, Mich.

WANTED.—To exchange 10,000 Cuthbert raspberry roots, for beeswax, or L. foundation.
17-19db M. ISBELL, Norwich, Chenango Co., N.Y.

WANTED.—To sell, or exchange for a small farm, my village home, consisting of 2 lots, a 2-story frame dwelling, a 2 story frame wagon-shop; also 46 colonies of bees. For particulars address
17tfdb M. LUDTMAN, Hannibal, Monroe Co., Ohio.

WANTED.—Beeswax. Any amount of average beeswax, at 22 cts., cash on delivery.
E. T. LEWIS & CO., Toledo, O.
17tfdb Apiarian Supply Dealers.

ITALIAN QUEENS.—Select tested, $1.00; second grade, 90c; third grade, 80c; untested and unwarranted, 60c, or $6.00 per dozen. 17-18-19d
DR. JOHN M. PRICE, Tampa, Hillsboro Co., Fla.

WANTED. — Comb honey, either basswood or white clover, in exchange for Simplicity hives. These hives are made of good lumber, by experienced workmen. O. H. HYATT,
17d Shenandoah, Page Co., Iowa.

WANTED.—To exchange Italian queens for alsike clover seed. J. T. VAN PETTEN, Linn, Kan.

FOR SALE. 40 colonies of Italian and hybrid bees in 10-frame Langstroth hives, with plenty of honey to winter on, at $4.00 per colony. JOHN CROMBIE, Columbus, Wis.

100 FINE PRINTED ENVELOPES,

white, or assorted colors, with name, business, and address on, all for 40 c.; 50 for 25 cts. By mail postpaid. Cards and letter-heads at same prices.
17-22db Address G. F. ROBB, Gilman, Iowa.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

A BARGAIN IN HONEY-TUMBLERS.

Among the many cheap packages for retailing extracted honey, the ½-lb. and 1-lb. tin-top glass honey - tumblers hold a prominent place. Though not quite as handy to carry as the glass honey-pails, they are much cheaper, and will be preferred by some. We have at last succeeded in obtaining these direct from the manufacturers, and get jobbers' prices instead of buying them from jobbers, as we have had to do in the past. We can thus offer them to you at the following reduced prices:

½-lb., 3c each; 25c for 10; $2.40 per box of 100; $5.25 per bbl. of 250, or $21.00 per 1000.

1-lb., 3c each; 28c per 10; $2.75 per box of 100; $5.20 per bbl. of 200, or $24.00 per 1000.

Orders for 1000 will be filled direct from the factory in Pittsburgh. You will notice that the tumblers are much cheaper in barrels, as a barrel costs us 35c, and a box of half its size costs 50c.

A. I. ROOT, Medina, Ohio.

CARNIOLAN + QUEENS.

Carniolans are the Gentlest Bees Known,

AND EQUAL TO ANY OTHER RACE FOR WORK.

THE QUEENS ARE THE MOST PROLIFIC.

I offer daughters, of Imported Benton Carniolan queen, raised in my apiary of 40 colonies of pure Carniolan bees, during the remainder of this season, $1.00 each; six, $5.00. Ten cents extra on each queen to Canada, England, Ireland, and South America. **DR. S. W. MORRISON,**
13tfdb **Oxford, Chester Co., Pa.**

Jerseyvile, Ill., July 23, 1886.

Mr. J. T. Wilson, Dear Sir:—The 55 warranted queens I received of you last year were all purely mated except one. The most of the queens were choice, and as good as higher-priced ones, for general purposes. E. ARMSTRONG.

One queen, 75 cts.; 6 for $4.00. Warranted purely mated. Will work as well on red clover as anybody's bees. Will exchange for honey, alsike clover seed, or Poland-China hogs. All queens sent by return mail unless ordered to the contrary.
15d J. T. WILSON, Nicholasville, Ky.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

---

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

CHEAP!

Full colonies in Simplicity hives, and honey enough to winter, for only $4.50. *Will ship last of July.* **DAN WHITE,**
11tfdb NEW LONDON, HURON CO., OHIO.

W. Z. HUTCHINSON,

ROGERSVILLE, GENESEE CO., MICH.,

is rearing Italian queens for sale again this season, and can furnish them by mail, safe arrival guaranteed, as follows: Single queen, $1.00; six queens for $5.00; twelve or more, 75 cts. each. Tested queens, $2.00 each. Make money orders payable at Flint, Mich. Send for price list of bees (full colonies, or by the pound). Given foundation, white-poplar sections, hives, cases, feeders, empty combs, etc. 13tfd

---

BEE-KEEPER'S GUIDE;

Or, MANUAL OF THE APIARY.

12,000 SOLD SINCE 1876.

13th THOUSAND JUST OUT!

10th THOUSAND SOLD IN JUST FOUR MONTHS!

4000 Sold Since May, 1883.

More than 50 pages, and more than 50 fine illustrations were added in the 8th edition. The whole work has been thoroughly revised, and contains the very latest in respect to bee-keeping. It is certainly the fullest and most scientific work treating of bees in the World. Price, by mail, **$1.25.** Liberal discount to dealers and to clubs.

A. J. COOK, Author and Publisher,
13-23 Agricultural College, Mich.

RED-CLOVER ITALIANS.

During the season just passed, Moore's Italians have roared away on red clover, in countless thousands. Reduced prices: Warranted queens, each, 80 cts.; per ½ doz., $4.50. Tested queens, $1.25. Safe arrival and satisfaction guaranteed. Circular free. 15tfdb J. P. MOORE, MORGAN, PENDLETON CO., KY.

HELP! HELP! HELP!

Me develop my honey-trade in Philadelphia by consigning me your honey. Those I have sold for, express satisfaction.

TODD'S HONEY CANDIES

Sample package mailed on receipt of 25 cts. Special rates for quantities for fairs.
1618db ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.

$2.50 CHEAP $2.50

I will sell three-frame (Simp. size) nucleus colonies, all straight worker-comb, well-filled with brood and honey, 1 pound of Italian bees, and nice tested Italian queen, for only $2.50. Now, friends, I guarantee these colonies to be first-class in every respect. Fifty colonies ready now. A fine lot of untested queens at 75 cts.; $4.00 per ½ doz., and tested at $1.00; $5.50 per ½ doz. Safe arrival and satisfaction guaranteed. **F. W. MOATS,**
15-17db The Bend, Defiance Co., Ohio.

VANDERVORT
COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

ATTENTION, BEE-KEEPERS!

Now is the time to Italianize cheap. Having all my orders filled to-date, I will sell fine queens, from my well known strains, at the following very low rates.

1 queen,	$ .80	1 tested queen,	$1.50
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Safe arrival of all queens guaranteed, and queens sent by return mail. Address
16tfdb **WM. W. CARY, COLERAINE, MASS.**

---

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We have at the factory in Elmira, N. Y., a 2 H. P. engine and boiler that has been rigged up exactly as good as new in every respect. It ought to bring full price of a new one, but in order to get it off our hands we offer it for $150.00.
A. I. ROOT, Medina, O.

VERY LOW.

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16-17d S. F. REED, North Dorchester, N. H.

THE AMERICAN APICULTURIST

Sent one year, and a tested Italian queen, to each subscriber; all for $1.50. Sample copies free.
15tfdb Address HENRY ALLEY, Wenham, Mass.

PURE ITALIAN QUEENS.

Tested queens, $1.50 each; untested, 70c each; 3 for $2.00; 5 for $3.00. All bred from a select imported mother. By return mail.
15tfdb D. G. EDMISTON, ADRIAN, LEN. CO.

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GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.R.Whiting

Vol. XIV. **SEPT. 1, 1886.** **No. 17.**

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NOTES FROM THE BANNER APIARY.

NO. 81.

DISTANCE APART FOR COMBS.

GEO. A. WRIGHT, in the *A. B. J.*, says: "I notice some are having trouble in trying to get the bees to build worker comb. With me this season it has worked like a charm. I hive my swarms on from five to seven frames; the frames are spaced 1¼ inches from center to center. If they are put further apart than this they are sure to build drone-comb."

Perhaps one reason why I have succeeded so well is because my frames have never been further apart than 1⅜ inches. Putting them thus close will not *always* prevent the building of drone-comb, as I have had one-fifth of the comb built drone-comb when the queen was three or more years old. I do not doubt that putting the frames close together *aids* in securing worker-comb.

SHAVINGS FOR SMOKER FUEL.

You mention, Mr. Editor, trying planer shavings *a la* Heddon, in the Clark smoker, and that it was not a success. I wish you would give them a trial in the Bingham—the Doctor. I have both the "Conqueror" and the "Doctor" sizes, and the Doctor works the better. This, filled with shavings, packed down, will smoulder away for hours when not in use—like fire in a bank of sawdust—while a few puffs will bring forth a perfect deluge of smoke. Mr. Heddon tells us how to light the shavings with rotten wood or punk. *I* light it as follows: Put a *small* handful of shavings into the smoker, not all over the bottom, as then the fire is blown *away* from the shavings, and they take fire very slowly; but put them to one side, in such a manner that the bottom is about half covered with shavings. Light a match and carefully set it on end upon the bottom of the smoker, leaning it against the shavings. As the shavings take fire, work the bellows *very* slowly and steadily. As the fire increases, slowly incline the smoker in such a manner that the pile of shavings will gradually "fall over upon the fire," so to speak, and cover the bottom of the smoker. When this handful of shavings is nearly burned into cinders, add another handful of shavings; get these well to burning, then fill up the smoker, and it is ready for business. The trouble in lighting is in adding too many shavings at first, thus smothering the fire before there are sufficient shavings afire to hold the fire. When well started, the fire in the "Doctor" has *never* gone out until it burned out, and brother and I have taken solid comfort this season with our "Doctors," and planer shavings for fuel.

By the way, I believe I never told of a visit that I once made to Mr. Bingham. It was during the State Fair two years ago, that Mr. B. whisked me home with him to stay over night. After being shown through his smoker-factory, and witnessing the care, thought, and attention bestowed upon valves, springs, bellows, fastenings, and other *apparently* trivial matters, and then considering the *grand* "direct-draft" principle, I no longer wonder *why* the Bingham smokers are so far superior to all others.

QUEEN-EXCLUDING HONEY-BOARDS.

Tell Dr. Tinker that I *did* see his honey-board at the Michigan State Fair, but did *not* notice how it was made. The first time I thought of putting strips of zinc in grooves cut in the edges of slats was when Mr. Heddon wrote me last winter, saying that he was going to make some slat honey-boards, and *tack strips of zinc to them*, and he wished for my opinion as to whether to put the zinc under the slats or over them. Quick as a flash came the thought: "Put them in the middle." The spaces between the wooden slats would then be shallower, and less likely to be filled with brace-combs. Before my reply reached Mr. Heddon, it seems that both a student of his and he had conceived of the same idea. Dr. Tinker was, however, the *first* to make public this method of constructing honey-boards; and although others were *original* in discovering the same thing, they have no desire to rob the doctor of the honors that justly belong to him. I have used 20 of these honey-boards this season and I have nothing yet to add to what I have already said. They are *very* satisfactory. By the way, a correspondent suggested to me, some time ago, that he thought the solar wax-extractor would be an excellent place in which to clean honey-boards.

INVERTING HIVES.

I think Mr. Kretchmer is correct in his views in regard to the effect that inverting may have upon queens and queen-cells. I have wondered for some time if inversion did not rob the bees of their *desire* to swarm, and that the *bees* then destroyed the queen-cells.

THAT "EXPLANATION."

I have no desire to again open the discussion of the validity of the "Heddon patent," but *would* like to say a few words in regard to the "explanation" that Mr. Kretchmer was asked to give. When I wrote the article defending Mr. Heddon and his hive, you, Mr. Editor, replied by publishing an article from Mr. Kretchmer in which he unfairly or unwittingly claimed to have invented, used, and patented a hive similar to the Heddon hive. Upon seeing a copy of Mr. K.'s patent, you wrote to him for an *explanation*. Mr. K. seems capable of giving us some valuable ideas; but before again entering these columns, did not common courtesy demand either a retraction, apology, or explanation?

W. Z. HUTCHINSON.

Rogersville, Mich., Aug., 1886.

Friend H., Mr. Kretchmer did promptly send an explanation. The explanation was, however, too lengthy and complicated to be published. It seemed, however, to be reasonable. I forwarded it to friend Heddon, and suggested that we had better let the matter drop. I hope friend K. will excuse me for saying right here, that, several times during the past ten or fifteen years, his explanations have been, to put it mildly, quite unfortunate, to say the least. I published what I did in regard to the effect of inversion on queen-cells, etc., because it seemed to me as if there were a valuable point here that should be investigated.

LETTER FROM NEW SOUTH WALES, AUSTRALIA.

WHAT A WOMAN'S ENERGY AND DETERMINATION WILL DO WHEN HER HEART IS IN THE WORK.

DEAR MR. ROOT:—My brother has sent you a list of things he wants, and has written you, one of his short business-like letters; but I want to write to you about our friends the bees, and I thought you might like to know a little of their doings in far-off New South Wales.

Would you like to have some of my experiences in bee-keeping? For years I have been a lover of bees; but as the greater part of my life was spent in India, where the bees build their combs like a sponge stuck on a stick, I never succeeded in doing much more than reading and treasuring up every scrap I could get hold of about my little friends. When I first came to the colony, scarcely a bee was to be seen anywhere. "Driven out by the moth" was the universal verdict. Even the bush, or forest, as you would call it, was destitute of bees. About four years ago I bought my first swarm, which, to my grief, I found to be queenless. After this I heard of a man who kept bees in common gin-cases, about four miles away; so one fine bright winter's day away my brother and I started (he came only to please me, for he was not a bee-enthusiast then, but he is now). The old farmer gave us a swarm that had not been robbed since the spring. We were so much afraid to trust our newly acquired treasure to any one else, we resolved to carry it home ourselves, much in the same fashion in which the spies carried home the grapes from Eshcol. Well, to make a big story short, we carried home our box of bees and honey over four miles of as hilly a country as you would wish to see, and did not get home till midnight. It weighed over 70 lbs. It was a grand swarm, and I think we deserved it; but, as usual with beginners, we were in too great a hurry, and lost nearly all by increasing too rapidly.

The next was a bad year; but we got some honey, and our bees did not require feeding in the winter.

Last summer the rain failed us altogther, and what honey was gathered was very thick and dark. I saw some take a prize at a show that was more like treacle [cheap molasses.—ED.] than honey. As our space was very limited this year we did not increase more than we could help. Now we have, after giving away some swarms, ten good strong stocks. You will see by my brother's list that we intend going in very extensively for bees this year. I don't think we shall have any difficulty in selling our honey; but if you could see the honey usually sold here I doubt if you would care to touch it. Bees, brood, pollen, moth, grubs, and all, pitched into a bag and hung out in the sun to strain. Those who put this mixture into a bucket, and stand it in a boiler of hot water, and then strain it through at once are considered as rather advanced bee-keepers.

Mr. Garrett, of late of Glenbrook, and ourselves are anxious to establish, as soon as possible, a central depot for the sale of pure extracted and comb honey, and we thought it would be a good idea to combine apiarian requisites with it. As you have so much experience in these things I thought the best thing we could do would be to ask your advice; and, if you agree with us, to ask you the best way to set about it. Think the matter over, Mr. Root, and let us know what you think. We should like to get the things from America, and we should like particularly to get them from you, as you seem to understand the wants of bee-keepers so thoroughly. Mr. Garrett lent me a lot of your GLEANINGS. I have studied them carefully, and I don't think you will think me presumptuous if I say I feel as if I had found a new friend.

I meant to have told you something about bees in Australia, and I have selfishly taken up all the paper with my own affairs. We have one great advantage over English and American bee-keepers—our bees require no wintering; an extra mat or a couple of sheets of newspaper under the cover is all we need.

On the 18th of June (the 21st is our mid-winter day) I opened the hives and found eggs and brood in all stages; again on the 12th of July it was the same with this difference—that the brood was all at the top of the frames, and the honey at the bottom. I think we shall have an early spring and good honey season; and if it please God we hope to do well with our bees this year. Bee culture is beginning to excite some interest here; but still there are plenty of people who think we are quite mad to think of making money by bees.

I have come to the end of my paper, so I must bring this to a close by asking you to see that the things are sent as quickly as possible I am anxious to begin work. We should have sent the month before, with Mr. Garrett's order; but through a misunderstanding it was left behind.

SOPHIE A. BRADLEY.

Campbelltown, N. S. W., July 13, 1886.

My good friend, your description of your first start brought vividly to my mind my experience with my first swarm. It was carried home on a pole between two of us, exactly as you describe; and as it was a hot autumn day the sweat dripped from our faces before we got the hive to its destination; namely, the upper floor of the woodshed. You say you carried your hive four miles, but I believe we carried ours only about one mile.—I should be very glad indeed to give you some practical suggestions in regard to starting a supply-house, but I know too little of your circumstances and surroundings. I would suggest, however, that you invest cautiously, and bend all your energies toward making the bees themselves open a way for a brisk trade. Nothing ever helped me so much to establish a business as pouring tons of honey on to the market, the product of our own apiary. Articles written for your local papers, answering questions and explaining improved bee culture, will greatly help you.—Many thanks for your very kind and encouraging words. It gives me a thrill of pleasure to know that I have made friends, even in far-off lands, by what I have written about bees. May God bless and prosper you in your undertaking, for I am sure it is one that is pleasing in his sight. Perhaps I should explain to our readers that the above letter was accompanied by an order for over $200 worth of supplies.

CAN A QUEEN LAY 3000 EGGS PER DAY?

A. W. OSBURN'S OPINION ON THE SUBJECT.

HOW many bee-keepers are willing to be put on record as saying that it is their candid opinion that they ever owned a queen that laid 3000 eggs a day? For one I am not willing to be put on record as saying any such thing. While for the last ten years I have kept bees in a warm climate, and where it is reasonable to expect the queens to lay as fast as in colder climates, yet I am not going to say that I ever thought that any one queen laid for me 3000 eggs in 24 hours. Let's figure a little: Suppose the queen has got to lay 3000 eggs in 24 hours, how long will that allow her for each egg? According to my figuring she will have 28.8 seconds for each egg; that is, supposing she does not lose any time, which is a wrong supposition; for the time lost in examining cells that have already been laid in, and in traveling over the comb, will reduce the aggregate of her day's work fully one-third (that is, if she is expected to lay 3000 eggs in one day. You or any other bee-keeper can satisfy your minds upon this subject by watching any good prolific queen while she is laying. Hold your watch and see how many eggs she deposits in one minute. I have known them to deposit three in one minute, and then go three minutes and not deposit any; but when there is nothing to disturb them, and the comb is free from pollen, about two eggs a minute is their speed, *while they keep at it;* but they do not keep at it all the time; they stop and have a friendly chat with some worker, or perhaps take a little refreshment, as they go from one comb to another, for no queen fills the full side, or two sides of a comb, before she goes off from it; but the time is going on; and when the 24 hours roll round, if she has deposited 2000 eggs she has, in all probability, done about the best she could.

Now, it will not be out of place here to say some things for the benefit of beginners about the habits of queens while laying (I am speaking now of full colonies that have from 8 to 10 frames). It is supposed by many *beginners*, that, when they put an empty comb in the brood-nest, the queen is going to fill that comb the first thing she does, and that, too, without leaving it. Nothing can be further from the fact, as experience shows. The queen goes from one side of her brood-chamber to the other every 24 hours, or nearly that, examining every comb that has brood in, to fill all cells where bees have been hatched; and if the empty comb comes in her way she puts in it what eggs she has time to, but never to the neglect of the combs where young bees are hatching constantly; for it has always seemed to me that, if there were any one thing that a queen delights in doing more than another, it is to lay in cells that bees have just come out of. A. W. OSBURN.

Havana, Cuba, W. I., Aug. 2, 1886.

Why, friend O., it is not a matter of opinion, but simply a question of figures. From our observations here, a queen will fill one side of an L. frame, and sometimes a part of the other side, in 24 hours. What we mean by "fill" is two-thirds or three-fourths of one side. As queens fill a frame somewhat in the form of a circle, there is generally not over three-fourths of the cells with an egg in. The number of eggs can now be very easily determined by calculating the number of cells to the frame. It is commonly estimated that there are about 25 worker-cells to the square inch. This number per inch would be correct if the cells were square; but as they are hexagonal in form, Cheshire has shown that there are nearly 29 cells to the inch. Taking 28 cells as the basis, we find that, in round numbers, there are about 4000 cells to one side of an L. frame. On the supposition that a queen can fill three-fourths of this number, 3000 as the total number of eggs laid by a queen in a day is about correct. You say you have seen queens lay three eggs a minute; and yet if she lays two a minute, at this rate she will lay very close on to 3000 eggs in 24 hours. You say that she does not keep this rate up. Opening the hive and exposing the queen and frame to the light is apt to break up the normal condition of affairs. Were the hive closed, a good fertile queen on a frame of foundation nearly drawn out ought to be able to fill the frame nearly full in a day; at least, we have had queens do it repeatedly. Bear in mind, that we are talking about what queens *can* lay, not the daily average number per day.

UNFINISHED SECTIONS, ETC.

WHAT TO DO WITH THEM.

IN response to Bro. Stewart, on page 654, I will say that there are two ways to handle unfinished sections of honey. They may be finished by feeding back extracted honey; but most or all who have tried this plan have abandoned it. Our method has been as follows: All combs that are not sufficiently filled and sealed to make a fine appearance on the market, we place in a frame (six at a time), and after uncapping the part that is sealed we sling out the honey which is particularly clean, and place them in storing-cases, to be placed on the hives during the most excessive flow of the following season, when the bees can not build comb fast enough to hold the nectar they can easily gather.

Now about the "bulging" of the combs in these replaced sections. We have suffered this inconvenience, and know the cause and prevention. When you are re-casing the sections of combs, combs of various stages of development, never put thin and thick combs next to each other; neither put the fuller side of one section next to the shallower side of another. Put full sides together, and shallow sides together, and only such sections in any one row as are about equal in comb growth. This is the way we handled the few bulged sections that were left unfinished. With these precautions, bulging is made straighter, rather than crooked, the second year.

We have never had any trouble with pollen getting into the sections because of "contracting," and we have practiced it five years, and are quite sure that we shall continue its practice as long as we produce surplus honey. We are sure we have abundance of pollen here. No, we have never noticed that "reversing" combs tended to the depositing of bee-bread in the sections. During the past three years we have had in use from a few to as many as 6000 reversible frames, and have never yet been able to discover any objection to them, but many advantages instead. We never expect to use other than invertible combs.

We have never yet had a cell of brood "chill" when practicing our method of preventing *after-swarms*, and can not see how any can become chilled if my directions are followed.

Now, friend Root, I consider it my *duty* to offer a public protest against the article in last issue, pages 651-'2, signed E. Kretchmer, wherein he again lays claim to one of the prominent functions of my new hive, patented last Sept.; viz., the use of a brood-chamber divided in two horizontal parts. You will recollect, that, on page 211, Mr. K. claimed to have a patent, No. 67,123, that antedated my invention, and that copies of that patent showed that claim to be untrue, as not a single function of my hive was therein shown. I claim this and the use of half-bee-spaces as prominent parts and parcels of my invention, and hereby respectfully ask all brother bee-keepers to respect my rights in them.

Dowagiac, Mich., Aug., 1886. JAMES HEDDON.

Friend H., our answer to friend Hutchinson covers partly what you say in your last paragraph. We published friend K.'s article because it seemed to suggest or call attention to something of value. Very likely it would have been better to omit the last paragraph of friend K.'s article to which you allude. I do not believe it is best to discuss the question of rights again on these pages.

THE WAX QUESTION, AGAIN.

ARE THERE ANY MISSING LINKS IN HASTY'S EXPERIMENTS, AS RECORDED ON P. 641?

I WAS very much interested in reading friend Hasty's article on the wax question, but it still seems to me that there are some "missing links" in the really wonderful chain of evidence and experiments that he has constructed.

In the first place, how did he ascertain that the swarm, when first hived, had no wax secreted? He says that he thinks they did not have any. Bee-keepers have generally supposed that a colony before swarming always begins secreting or forming wax, or, at least, that a swarm after issuing is provided with quantities of wax scales. If this be true, then how can friend H. estimate the amount of nectar used to form *this* wax? and, also, what proportion of the wax stored during the days of testing was already secreted when the swarm was hived?

Again, on account of the bees being in a wax-secreting condition (allow me to use such a phrase), would they be obliged to draw as heavily upon the nectar already stored, for this secretion, as would an older swarm, just beginning to form comb, as in working in section boxes? He writes, that a colony rearing brood will consume about seven ounces only, during a night. If this is the case, what becomes of the large amount of honey that a swarm of bees contains when the bees leave the parent hive? We all know that the bees gorge themselves before swarming, and I have hived such swarms (which I should judge had fully 2 lbs. of honey in their sacks) after they had been clustered about an hour, and then they did not have much if any honey, and they took nearly 2 lbs. of honey from a feeder, immediately after I had hived them, and this before they had any combs built in which to store this feed. Now, what had become of their first load? They could not have eaten it all simply to satisfy hunger. I have seen bees from new swarms return from the fields with a load of honey, and also with wax scales adhering to them. Who can say but that this wax was secreted while the bees were at work in the fields? and how can we get at the amount of nectar required to form it? It seems to me, that, in order to get *exactly* at this question, as Mr. Hasty would desire, we have got to pursue a different line of investigation, and have *all* points tally more correctly than they seem to in his article.

I would not have you think that I write thus simply for argument's sake; but I believe in this: "If you don't talk you won't say any thing;" and I would say, "If you don't read or write in bee-journals you won't learn much about any thing"—at least, in this line. CHAS. H. SMITH.

Pittsfield, Mass., Aug., 1886.

Friend S., your suggestion, that the bees consume honey while in the fields, for storing wax, is an important one. I do not now remember that I ever saw wax scales on a bee while at work in the fields; but perhaps it is because I was never on the watch for them. I confess I do not see how we can get at the matter with much accuracy while the bees are allowed to fly; and it may also be true that we can not get much accuracy where they are *not* allowed to fly. If so, how shall we decide on this important question?

SALT FOR BEES.

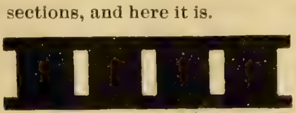
FOSTER'S OPEN-SIDE SECTION.

ON page 502 are two references to my article on salt for bees, as given on page 178. In reply to the first I will say that I have heard that stock that graze near tide-water do not need salt as do those that graze further inland; and if so, it may be the same with bees.

In regard to the second, I can say that, while I have not seen bees "shoulder a lump of salt," I have seen them sucking the damp earth just below a deposit of salt on the points and edges of earth, as referred to in my article on page 178. This, I think, proves *almost* conclusively that it is a strong solution of salt they are after.

SECTIONS OPEN ON ALL SIDES.

I was very much interested in the Book Review, wherein was mentioned Foster's open-side sections (see page 483). Ever since I became acquainted with the open-end section I have felt that it was "the thing;" but in practice I met with difficulties. It seemed to be intended to be used without separators, and, in consequence, with sections both wide and narrow, I had bulged comb, so I have attempted to devise a separator that could be used with open-end sections, and here it is.



TIN SEPARATOR, EXPRESSLY FOR USE IN SECTIONS WITH OPENINGS ALL ROUND.

The slots are intended to match with the edges of the sections, and will enable the bees to have the same free communication that they would have without them. I think the slots in the separators should be about ¾ inch wide, and in the sections somewhat narrower than you make them. Further, I would not fasten the separators to the wide frames, but hang them from the top-bar; then, by detaching them, the bees can be brushed from both sides of the sections instantly. W. H. GREER.

Paris, Tenn., July 19, 1886.

The separator figure above has been many times suggested, and the same, or something quite similar, is in use by different parties. The principal objection is the expense of manufacturing such a separator.

DESTRUCTION OF QUEEN-CELLS BY INVERTING THE BROOD-COMBS.

FRIEND SHUCK GIVES US SOME ADDITIONAL FACTS IN REGARD TO THE MATTER.

SO far as I know, my statement of the fact as to the destruction of queen-cells from their inversion was the first made. I have found, in not less than 150 trials, that the cell, if so far built as to turn downward, will be torn down and destroyed by the bees, if inverted at that time. Also, it will be thus destroyed if inverted at any time from the turning downward of the cell to the final sealing of the same. If inverted after sealing, to within two or three days that the queen is due, the cell shrivels up, sinks into itself, as it were, and is treated precisely as a cell from which the queen has failed to emerge; that is, sometimes it is torn down and sometimes is allowed to remain. In this latter case the young queen seems to have been destroyed by inversion: in the former cases it would seem that the cells and larvæ are destroyed by the bees because they have been inverted. I have found no practical use for the discovery.

It has been suggested, that, when a colony swarms, the parent hive might be inverted, and a new queen run in. This plan would succeed in a majority of cases; but should queen-cells be destroyed in this wholesale way? I think not. Rather save the queen-cells in some suitable way, and then introduce the queen.

Mr. Kretchmer's statement (see p. 651) as to "horizontal" queen-cells is hardly to the point. Such a cell can be inverted only by turning the comb upon its side. None of us are yet reckless enough to try this experiment. Our friend speaks truly when he says, that "many other profitable manipulations can be accomplished without inverting, and that is *alternating*." So can they with invertible frames; but the consumption of time is against the two latter, and in favor of the former. A hive can be inverted in less time than two chambers can be alternated, or the frames handled separately.

Mr. Pond pays his respects to inversion, but doesn't tell *all* the truth. Inversion does place the brood above the stored honey in the brood-nest, and the honey there stored will be carried into the sections (if they are in place); but this is not all. The space thus cleared will be occupied by the queen, and more laborers for the harvest are thus secured; and the *habit* of carrying the honey to the sections is thus established; and if the *habit* is not interfered with by swarming or queenlessness, it will be likely to continue till frost stops the work.

SHAVING THE COMBS TO $\frac{7}{8}$ IN. TO MAKE BEES STORE HONEY ABOVE, A LA POND.

The thin combs so justly praised by Mr. Pond (page 529) are not infallible; and whatever of value attaches to them is perfectly adapted to the invertible system. In fact, I use nine frames during the white-honey harvest in an eight-frame hive, but I remove one frame for the fall harvest so that the combs may be bulged to repletion for winter stores.

The invertible hive and all its appurtenances are as cheap as any non-invertible hive of the same class of material and workmanship, and the time required to manipulate the invertible for the production of honey is not one-fourth the time required for a non-invertible hive. There is the gage, come who may. J. M. SHUCK.

Des Moines, Iowa, Aug., 1886.

A DEFENSE OF THE BLACK BEE.

A REPORT THAT WILL DO CREDIT TO ANY RACE OF BEES.

SEEING Mr. Doolittle's article, in Aug. 15th GLEANINGS, "On the Different Races of Bees," I feel I can not let it pass, especially that part of it which has reference to the black, or brown bee, without standing up and speaking in its defense. What he says about it as a poor honey-gatherer is not true in my experience. I have kept bees for the past 8 years, and have had nothing but blacks, and my returns compare favorably with those of my brother bee-keepers who have Italians. To prove what I say, I will give you some of my experience.

Three years ago was a good honey season in Canada. I had 30 colonies in the spring; 5 were weak and 25 were good. I got 4500 lbs. of honey, of which 1200 lbs. was comb; increased to 80, and the colonies averaged 25 lbs. each for wintering. Is that "from hand to mouth," or "calculating a day or so in advance"? Now for two poor seasons, especially this year: I began with 130; increased to 220; got 7000 lbs. of honey, of which 2400 is comb honey, and they all average 25 lbs. per colony for winter. Is that "from hand to mouth"? Last year was very much like this, when we got about the same per colony. Those of my acquaintances who have Italians get no more per colony than I do. As for the wax-moth, I have never lost a colony from that cause yet, and surely they must resist it, or they would all have been destroyed; and as to their being cross, I find no trouble in handling them. Now, I say that both Italians and blacks have good qualities. It hurts me to hear the bee run down, that has proved such a friend to me. I also see that Mr. Root agrees in every particular with what Mr. D. says. Now, Mr. R., can you say from actual experience that what Mr. D. says about the blacks is true as honey-gatherers?

WM. COLEMAN.

Devizes, Ont., Can., Aug. 26, 1886.

Friend C., I am very glad to hear your good report with common bees; but if you will excuse me, it seems to me it does not strike the point after all. You say you had nothing but blacks; therefore, how do you know that Italians in your hands would not have done a good deal better, even, than the report you give? It is true, you say your neighbors have done no better with Italians; but I suspect that, if your neighbors had only blacks, like yours, they would not have done nearly as well as they have done. I presume you know it is a common thing for one bee-keeper to get good yields of honey every season, while his neighbors around him do little or nothing. It is in the man as well as in the bees. The comparative difference between the Italians and the common bees has been settled for years, with such overwhelming results in favor of the Italians that I hardly think it worth while to open it again. We are glad of your report, however; but I would put it something this way: "Mr. William Coleman, of Devizes, Ontario, Canada, has obtained 7000 lbs. of honey, and increased from 130 to 220 during the past year, and that, too, with only common black bees." I hardly think you will call me prejudiced, because this matter has been discussed over and over for many years.

HOW TO UNITE,

AND MAKE THE BEES STAY IN THEIR NEW LOCATION.

I HAVE just received a card from W. H. Ritter, of North Springfield, Mo., in which he wishes to know how I unite my bees without having trouble; and as it might be of interest to many of your readers I will give you my plan—one that has never failed with me so far, though I can't tell how soon it may. In the first place, I never unite except when they are light, both in bees and honey.

A little before sunset, when the weather is good, I take my smoker and go to the colonies I wish to unite; and by a vigorous smoking and jarring of the hive I cause them to fill themselves with honey. This takes only a few minutes. I then simply pick up the hives and carry them near the hive where I wish them all to remain, open them all up, and, if necessary, give them another dose of smoke; then I shake bees of the colony that stands in the place where I wish the united colony to stand, all or nearly all off the combs in front of their hive, setting their combs in an empty hive close at hand, replacing them with combs from the other colonies, after the bees have been shaken off in front of the same hive. In this way I get the bees thoroughly mixed, so they are all strangers to one another, and I sometimes alternate combs from different hives; but it is not essential—at least, I have not found it so.

Now you will ask me, "How do you get them to stay on the strange stand?" Well, I keep a lookout for a while after uniting (the same evening and next morning); and if any considerable number of bees go back to their old stand I let them buzz around until they get thoroughly frightened at the loss of their home, then I pick up the united colony and carry it around to the place where they formerly stood, and in five minutes I can pick up all the stray bees, then carry the hive back where it belongs, and hardly a bee will go back to his old stand, provided the hives are all taken away so they can not see them. To be successful with the above plan, all the hives should be of one color, and as much alike as possible. By the above plan I united 39 colonies back to 24 in my own yard; and in another yard, about 12 miles from here, belonging to a lady friend, I doubled back from 17 to 7 in the middle of the day, and never stayed an hour to look after them, and she writes me that hardly a bee went back. The proof of the pudding is in the eating; and in this case it has proved excellent. It may be well for me to state, that all the above was done during a dearth of honey, when bees are inclined to be more quarrelsome than at any other time.

M. BROERS.

Gonzales, Texas, Aug. 23, 1886.

Friend B., your plan of uniting colonies and making the bees stay in their new location is very similar to the one we practice here at the Home of the Honey-Bees. Of course, we think *our* way is a little simpler, but the principle underlying both is the same. I have no doubt your plan will work, judging from our own experience. I would add, however, that I think you will find a marked difference in different colonies. While some will adhere to the hive in its new location, without very much trouble, the bees from another colony will persist in going back just as many times as you restore them to their combs and queen.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER IX.

THE DILIGENT REWARDED.

WHEN old winter began his icy reign, the bees were placed in the cellar. As they were increasing in numbers, it each year became more and more of a task to place them there. This fall Tommy constructed a hand-barrow on which he and Jane placed the hives and carried them into the cellar. During that winter, nothing occurred worthy of notice. Jane and Tommy were in school; and their studies, with the sports and excitements of the playground, almost drove all idea of bee-keeping out of their minds for the time.

Mr. Shaw, the grocer, who had purchased their honey, placed it in a position to be seen by all his customers; and if any inquired about it he was careful to explain that he had purchased it from a little boy and girl who had raised it. Much inquiry was made about how it was secured in such frames, and all so nicely filled. He could only refer them to Mr. Meek for this information. Several persons met Mr. Meek in the town, and asked questions about bee-keeping, and the kind of hives to use; while others came out to his house to see his hives and fixtures. If the children were at school, Mr. Meek took pleasure in showing them these, and explaining their uses; in fact, it usually amounted to quite a lesson in bee culture.

Good Mr. Brown was frequently a caller at Mr. Meek's, for they were warm friends. Frequently he asked the children how they liked keeping bees, or how they were succeeding, and heard their report. One day he said to Mr. Meek, "I am almost sorry I gave that hive to the children, for you are wasting so much money on bee-fixtures. I have kept bees for fifteen years, and I assure you it does not pay."

Mr. Meek began to discourse on the improvements which have been made in bee culture, when Mr. Brown shook his head, saying, "I want to hear none of your new-fangled notions. These so-called improvements are the inventions of *gouges* who are after people's money. I am truly sorry to see you waste your money on such fixtures."

One day in the fall, soon after the children had sold their honey, he came in, and, with a queer expression on his face, asked, "Did your children sell Mr. Shaw that pile of honey he has in his store?"

"Yes," replied Mr. Meek; "and besides, they gave us over seventy pounds to use here at home."

"Well, now," said Mr. Brown, "that does beat all! Last spring I stuck an empty fish-kit on one of my hives, and the bees filled it with nice honey. As I had enough without it, I took it to Mr. Shaw's store. He refused to buy it—would not even look at it, and showed me what a pile of honey he had on hand, and said he got it all from your children. He said he would never sell any more honey, unless in little boxes like those in which your children had it. I looked at some, and found them the nicest combs of honey I ever saw, and could be handled so nicely without waste. I took my honey to another store, and could not sell it there. I then took it to another, where I was offered nine cents a pound in trade, which I took, and even they did not buy it very willingly. Now, you know I always have opposed you when you wanted to present new ideas about bee-keeping; but what I saw in the store, of the result of improvements, makes me think otherwise. If you have time to spare, I do not mind to take a look at some of your fixtures, and see what you have to say about them."

As they did so, Mr. Brown would rub his hands, and exclaim, "Well, well, well! that does beat all! I never thought bees were such curious creatures, or that they could be worked with in such a way. I wish I had learned about them when I was young. I guess I shan't begin now. But I tell you what I will do. My youngest children have caught this bee-fever from yours, and talk so much about bees that I will give them mine on certain conditions, and let them make their best of them. I hope they may succeed as well as yours have done."

At length spring came; but the weather was so unsettled that the bees in the cellar were not disturbed until late. One day, all things indicating pleasant weather, the children carried their hand-barrow to the cellar, and, closing the entrance of a hive, placed it on the barrow and carried it out to the yard. After placing it on its summer stand and opening the entrance, they were much surprised at seeing not a single bee making its appearance. On opening the hive they found not a living bee in it. They were terror-stricken. What if all their colonies were dead? They hastened to bring out another; but as soon as its entrance was opened the bees poured forth. It was so with the other seven. Mr. Meek examined the dead colony, and said the cause of its death was the loss of the queen and their failure to raise another. They had an abundance of nicely sealed honey. They took these combs and exchanged them for empty combs in light hives. They prepared two colonies for extracted honey, and six for comb. The extra combs obtained from the colony that died were divided between the two upper stories intended for extracting. To preserve these combs from the moth, they placed on these upper stories containing them, in the time of fruit-blossoms. They had sections also ready to put on the hives as soon as the white clover opened. When they put these on they also looked into the upper stories of the extracting-hives, and were gratified at seeing them full of bees, and were satisfied that work in those upper stories had already been begun. Tommy, by the advice of his father, prepared two upper stories, similar to the others; and when those were well filled, Mr. Meek helped to raise them and place on the empty ones, placing the full ones on top. As the frames in these empty ones were provided with wide strips of foundation, the bees were not long in drawing these out and completely filling the frames with comb. When the upper sets of frames were completely capped they were taken out, carried into the house, uncapped, and extracted. Mr. Meek then raised the next story while the children slipped under it the other story filled with the freshly extracted combs.

The two hives from which they extracted were early strong in bees; and as they did not swarm, the yield from them was 368 lbs. They made all needful preparation, and also kept all as busy as they could. The yield from white clover was not so good as on the previous year; but they had a good yield from fall flowers, which made the year a better one for bee-keepers than the preceding one. Two of the colonies were so busy gathering honey they did not swarm at all. Two others swarmed only once, and one swarm went to the woods. So at the close of the season they had only five of an increase, making their colonies number thirteen.

One day, near the close of the yield from white clover, they, with the help of their father, removed the sections from the hives prepared for comb honey, and, taking out the two outside combs, extracted the honey from them and returned them, that the bees might fill them with honey from fall flowers, which is usually of an inferior quality, and not so ready sale, but does for winter stores. From these they obtained enough to make their crop of extracted honey weigh 500 lbs. Extracting those outside combs doubtless made the yield of comb honey less than it would have been. Their yield of comb honey was only 550 lbs.

Although nothing has been said about stings since Tommy received his first one, you are not to suppose they worked all this time and escaped without receiving another. They had received so many that a sting or two were generally expected when they had much work to do in the apiary. In fact, a dread of being stung often kept them from doing needed work, until their father urged them to it. Tommy took many a dance in consequence of some cross bee touching him on a tender spot; and Jane had often run from the apiary with a bee in her bonnet, calling upon her mother to help remove it. One evening she received a sting on her nose, between the eyes. The next morning, when her mother entered her room to call her, she could hardly believe that the girl she found in the bed was her own little Jane. Both eyes were closed by the swelling, and she looked like an entirely different person. Her appearance at the breakfast-table was greeted with a hearty laugh from both Tommy and her father; but now the stings had ceased to produce swelling as formerly.

The day they took out and extracted the outside combs from the lower stories was a rather unfortunate day for Tommy. The bees seemed very cross, and to have a spite at him; but he received sting after sting. At dinner he said, "I wish bees had no stings!"

His father replied, "Bees have very precious stores to guard, and require arms to guard and protect them. They have an army of lancers who stand guard over these stores. If let alone, bees are harmless; but when we try to rob them of their stores, this army of lancers charge on us. If they did not thus guard their stores, all animals that have a sweet tooth, and men and boys, would feed upon the products of their labor, and they could have no heart to work and gather stores. It is the fact that bees have stings, and use them, which makes it pay to keep bees. If they had no sting, so many would keep them that honey would bring almost nothing in the market. As it is, skill is required to handle bees and not be injured by their stings. Few acquire this skill. Patience is also required, and few attain that patience. Hence bee-keeping becomes a business, and can be engaged in by the skillful and patient as a means of livelihood.

Concluded next month.

APICULTURE A SUITABLE AVOCATION FOR WOMAN.

A RECREATION AND RELIEF FROM HER DAILY ROUTINE.

ALL persons are not born bee-keepers, or even made bee-keepers by years of experience, and it would be but folly to expect that *all* would be successful in that branch of industry. And, indeed, there is often more profit in bee-keeping as a recreation than in all the many returns that are realized, although there is sometimes a consideration in *that* respect.

When the weary rounds of business have become so monotonous that the heart at times sickens at it all, it is then a real relief to turn away from all these things and watch that "band of united workers who never strike" nor complain, moving so systematically along in their ceaseless toil. There is a practical lesson to be learned in watching these uncomplaining little workers. We who so often grow weary of our toil; who so often complain that our labor brings in no returns, can learn some valuable hints from the busy bee that expects no returns save a bare subsistence.

For the overworked, and those whose occupation consists of one changeless round of drudgery, we can not too earnestly recommend this employment. It has been argued by some, that woman is not physically fitted for this business; and by others, that it is unladylike. To such weakness as would prompt the latter thought we have no reply—nothing but a contemptuous pity! That woman is not strong enough for the more laborious part of bee-keeping as well as for many other things which come within the routine of domestic life, is only too true; but is there not for women, and especially on the farm, other back-breaking weights that have far less sweetness in them than honey-boxes? Most farmers' wives have no Irish or negro help to lift their wash-tubs, churn the butter, or do the various other hard jobs that are daily to be encountered.

It has been estimated that a large per cent of the insane entombed in the asylums are *farmers' wives*. Why is this? Simply because there is too much sameness—too little recreation in their lives of toil. Their work brings no remuneration; and woman, as well as man, is only human, and would like some little individual income or possession; and so, sooner or later, the oft-recurring duties become tasks, and life is, at length, reduced to the sphere of slavery.

This recreation among the bees is not at all needed where women are musicians, and can while away an hour or so each day on the latest sheets of music at the piano; or where she is educated to sketch, or paint on silk or velvet—painting the bee or butterfly on some household ornament; but really half the women on farms would feel guilty of some misdemeanor if seen at such employment—so thoroughly have they been taught to know nothing but *real work!*

Then, for mercy's sake, do not try to set up a "scarecrow" over bee-keeping, silk culture, or any other occupation that will be at all remunerative, and tend to lead the mind away from these unchanging household duties—duties that are all right and proper that every women should perform, but nevertheless need to be at intervals sweetened by change. There is nothing dishonorable in any honest employment. It will do to tolerate such sentiments under a monarchical form of government, where an idiot may be born an aristocrat; but we have only self-made aristocracy, and the canal-boy or rail-maker can reach the highest seat under our government, as well as the great. But we would advocate opening up all avenues to woman as well as to man; that is, all that are retired and not calculated to degrade her, which, if she has a love for it, we feel that bee-keeping could never do. Unless there is a real fancy for this business it is a mistaken calling; for bee-keeping, like every thing else, must be entered into with the whole heart to prove a success. But from practical experience, and not from theory, we can say that the sixty colonies which claim our daily individual attention are a real recreation. It leads the mind away from the humdrum cares of life into the study of nature, where its broad fields are spread out before us, rising to the sublimity of its heights as far as the weak human intellect can go as we watch the all-unconscious bee go forth in its ceaseless toil.

If all laborious work is to be taken away from woman because it is unladylike, let it then commence where the general health is most affected, and the mind least diverted, that the sphere of domestic life in general may be more bright and cheerful. A WOMAN.

Greenville, Ill.

PATENT DRONE-BROOD EXTRACTOR.

CHICKEN SHORTCAKE.

WHENEVER we had a lot of drones we used to destroy them with puffball, as some call it, which can be put in the smoker, the drones meantime having been set in a tight box. A few puffs will make them senseless, when they can be taken out and given to the chickens, which will consume all of them before they can fly again. The reason why we did not sulphur them is, that the chickens don't seem to like them so well, nor do I think that they are so beneficial to them when dead.

When I was a boy, and had but a few hives, I would often kill most of the drones of a hive when I knew they were driven down to the bottom-board, which the bees do when pasture gets scarce, or after a young queen is mated. I lifted the hive and put them through the above process. But the best chicken-feed consists of drone-brood from about 15 days old to mature; and what excellent drone-brood extractors chickens are! I found out accidentally, several years ago, when I had my bees several miles from the city, as usual, when late one day I had transferred a few box hives. By packing up, in a rush for the home train, I had left a large piece of well-capped drone-comb on the ground, which I found, when I came back the next day; but to my surprise I found the brood on the upper side was all taken carefully out. As I had noticed chickens around there, it struck me that nothing else could have likely taken it. I turned the comb up the other side, and soon had the chicks to extract it. As we had a lot of chickens this year, and plenty of box hives to transfer, I had plenty of what we call now "chicken shortcake," for which all the drone-brood was used. As I ran short of hives for want of time, I inverted all my remaining box hives, cut out all the drone-comb, before it could hatch, with my hoe shaped instrument.

Now, friend Root, I know that you have not much sympathy with patents or patent men; but as it seems to be fashionable to call every thing an invention, I leave it with you to decide who is the one entitled to the patent—the chicken or myself, for extracting drone-brood.

C. H. LUTTGENS.

Hammonton, N. J., July, 1886.

Friend L., no doubt your suggestion is a valuable one. I presume you use chickens of just the right age, for I could imagine that large fowls might tear the combs badly. I should think the food would be very stimulating to the chickens; but is it not rather expensive? Would it not be better to prevent the rearing of drone-brood by removing all the drone-comb?

KITCHEN CONVENIENCES.

FRIEND TERRY GIVES US SOME USEFUL SUGGESTIONS IN THE MATTER.

FRIEND ROOT:—Now about those improvements indoors. We will take the kitchen first. Here the farmer's wife and daughters spend a large part of their time. The interests of humanity demand that the air in this room be at all times as pure as possible. The farmer who works out in the open air is healthy and robust, as a rule. Now, the kitchen should be as near an approach to open air as it conveniently can be. A tent would be about perfection, for summer; something to keep the rain and sun off during the heat of the day, while allowing a perfectly free circulation of air at all times. Practically, about the best we can do is to have the kitchen in a wing by itself, with outside doors and windows on at least two sides. Then over these doors and windows on each side I would build a large porch. This allows almost as free a circulation of air during the summer as a tent would, and the women-folks have one chance at least for as good robust health as the men have. The windows should have pulleys and weights so the upper sash can be let down or the under one raised very easily for ventilation during cold weather, no matter if it takes a little more fuel. What is a little wood or coal by the side of good health? A physician in the Northwest tells me that, to save coal, which is quite valuable there, many make their houses very tight, and never ventilate any more than they can help, and the result is often a breaking out of typhoid fever, from breathing such filthy, impure air.

It has often amused me to see people who were extremely neat and clean in every other particular so extremely filthy in the matter of ventilation. It is a serious matter; but it is so inconsistent to work so hard to have those pans and dishes and clothes so perfectly free from a trace of dirt or filth while one is breathing the filthiest kind of air. Every breath from our lungs is defiling the air, as are also the emanations from the pots and kettles. The neat housekeeper is constantly washing her hands, when they become soiled in the least; why not wash the air, when it becomes almost sickening from the impurities in it? It is far more important that you should. Dirty hands would only offend the taste, while dirty air is seriously injurious to health. Let the outdoor worker, when he comes into his wife's kitchen, and can "scarcely breathe," fix it immediately so that she may have as pure air as he does to work in, and get his reward in her better health and longer life. Certainly the poorest can afford so cheap a luxury.

Of course, every man will have a pump in the kitchen, and dry wood or coal in the woodshed, where it can be got at handily. I do not need to speak of such matters. Also he will see that there are screens in all the doors and windows, so the good wife may not be annoyed by flies while she is busy with her work. These are almost as cheap as pure air now.

Then if he is like the writer he will have a slop-barrel on wheels standing by the west porch (in the shade) in the morning, and by the east one in the afternoon, so the ladies can dispose of the waste water with the least possible trouble, and with no danger to the purity of their surroundings.

One more point, not to be overlooked: The kitchen is a hot place when the thermometer is in the nineties, and a large cook-stove is adding to the heat. Even if the air is pure it is a terrible place to work, day after day, through the heat of summer. Now, we have it in our power to make kitchen life much more pleasant during the heated term. With a good oil-stove all the work can be done just as well, and one would hardly notice that there is any fire in the room. Our folks are right in the midst of washing this morning. I have just been down to see how the thermometer stood. On the east porch it was 92°; on the west one, 84°; in the kitchen, 84°; and in the main part of the house, 79°. Two oil-stoves were burning under a boiler of clothes. I can easily imagine how hot it would have been in the kitchen if the fire had been in the cook-stove. As it was, the temperature was the same that it was on a cool porch on the shady side of the house, and but 5° warmer than the coolest place in the body of the house. Thanks to the oil-stove. We have a range of three oil-stoves, and you may walk through the kitchen in the hottest day of summer, when the oven is full of baking bread, and my wife is ironing, and cooking dinner—all the stoves burning—and you will hardly notice any difference in temperature between the kitchen and parlor. There are oil-stoves made that are safer than any cook-stove; and the oil bought by the barrel will cost no more than wood at the price it is usually sold at in the village market. That is, *here*, at least, I can take wood to town and sell it for enough to pay for oil that would do the same amount of cooking.

A niece of the writer has no cook-stove in the house. The kitchen is warmed in winter by a furnace, the same as the rest of the house. But I would not advise this. Use the cook-stove during cold weather, and even cool mornings and days in summer, lighting the oil-stove whenever the cook-stove makes it uncomfortably warm. This will be the best economy, and the most healthy practice. Often on a cool morning, when you wouldn't have any fire in the furnace or heating stove, a little fire in the cook-stove would be pleasant, particularly to the older people, and conducive to health by driving out dampness. For ironing, the oil-stove is simply perfect. At first my wife thought that she couldn't make a success of baking bread; but I got her some new tins of just the right size, and experimented a little for her, and now she will bake an oven full of bread in 40 minutes as nicely as it can be done in any stove oven, at a cost for fuel of about half a cent. Women, like us men, are sometimes a little old-fogyish. The first time my wife undertook to get dinner on the oil-stove the potatoes would not get done on time. Dinner was an hour late. That upset her, for she can not bear to be behindhand. She made some pretty strong remarks about oil-stoves in general, and hers in particular, and was more than ever in love with the good old Stewart cook-stove that she had worked over for twenty years. I got dinner next day, or, at least, stewed the potatoes. First the bright new tin steamer was smoked on the bottom, as it always should be, and then just water enough to make steam—about a quart—was put in. Being a little nervous, we started the thing 20 minutes sooner than the directions said was necessary, and had dinner ready 20 minutes before the time! The wife gave up with good grace, and has since gone back on the old Stewart, even for steaming potatoes. A good oil-range will cost about $25, with all the fixings. I was once looking at a friend's nice stone walks, and remarked, "They must have cost you a good deal."

"Yes," he says, "there is less money in the bank, but a mighty sight more comfort around home."

The same may be said of the oil stove.

Hudson, O., Aug., 1836. T. B. TERRY.

Friend Terry, I most emphatically agree with almost every point you make; but I notice you speak of *coal-oil* stoves, and say nothing about gasoline. I presume your objection to gasoline, judging from what you say on page 535, is the danger; but are not stoves for gasoline now made so that the chances of danger are reduced to a minimum? We have tried coal-oil stoves, and gasoline too; but we find the gasoline rather the more convenient; but we should like to have your ideas on the subject while we are discussing convenient kitchens.—In regard to pure air, I am getting of late so that it is very hard for me to remain in any room very long unless the air is pretty nearly as pure as I find it outdoors.

SEVERAL MATTERS FROM FRIEND HEDDON.

QUEEN-EXCLUDING HONEY-BOARDS.

YES, they are a grand success. I think that Dr. Tinker's article in last issue, supplemented by your copy of my own from the *C. B. J.*, must shed some light upon the whole honey-board question. I think the doctor was first to publish the device of the unity of the metal strips with the wooden slats, by letting the metal into side-grooves; and he is entirely correct in saying that to him who first published it to the world, belongs the credit. We gladly accord it to the doctor, though we three, who were original in the same thought, had none of us ever seen it in any honey-board before.

MRS. CHADDOCK'S HONEY.

I am sorry to read the low prices Mrs. C. tells us she is selling her honey for. I think such low prices for comb honey are entirely unnecessary, and would, if long compelled, drive us all out of the business. On page 631 you quote Mr. Doolittle as "answering the wail of a few;" but take him as authority as to the cost of producing honey, and where is Mrs. Chaddock's bee culture going to end? She is selling at a price below the cost of production, according to Mr. Doolittle, and I think his figures are about right.

SHALL WE EXTRACT DARK HONEY?

I say, "Yes." I notice your foot-notes to Mr. Pond's article; but I must say that I think you are in error. Give me all light honey in the comb, and all dark extracted, for most profit. I do not speak theoretically, nor from a local experience; but after jobbing and wholesaling many tons in nearly every Eastern, Middle, and Western State in the Union.

HIS 25,000 LBS. OF HONEY, AND HOW TO DISPOSE OF IT.

Since the great loss of three-fourths of my bees during the severe winter of 1884-'85, I have been compelled to raise extracted honey mostly, and this year we have 25,000 lbs. of as fine thick clover and basswood honey as I ever saw. I am having no trouble in getting 8 cts. per lb. for it, at our depot, in 50 and 100 lb. lots, packages thrown in. Perhaps you will remember my articles on the taking and caring for extracted honey, on pages 625 and 659 of GLEANINGS for 1885. You will recollect what I said about the results in disposing of our crop, if we would only take the pains to produce an article of extracted honey that is in every respect as nice and smooth as the best comb honey. Well, I find the results as there predicted; for my customers will not leave me, even if they can buy extracted honey, from the same blossoms, at 2 cts. less per pound. You recollect the raspberry honey you sent me, at a low price. Well, friend Root, it is not eatable, simply because it was either taken before it was ripe, or else allowed to degenerate after being extracted. I see a new and grander future for extracted honey, when our producers will supply a choice article; but I sample scarcely any, as I find it on the markets, that is good for table sauce. I am compelled to admit, that most that I have produced has been of inferior quality; but for the past three years I have found the better and far more profitable way. I believe the time is near at hand when I can job out 50,000 lbs. per year, at prices that will pay for producing.

"OUR NEIGHBORS."

I am sorry if you have made haste to print a lot of circulars after the copy of Mr. Cameron's paragraphs, as found on page 619. We know that these statements come from a man of good heart,—we believe from a splendid man; but we think he has made the common error of misjudging the class he has written them for. If all the readers were living and thinking on this elevated plane, his statements to them would be of much service to all; but such is not true, I am sorry to say, and I believe that such a circular would do more harm than good.

This article is now long enough; but if you choose I will point out to you the whys and wherefores, and suggest such subtractions, additions, and alterations, as I think would make it a circular of value. JAMES HEDDON.

Dowagiac, Mich., Aug., 1886.

Friend H., I think many would disagree with you in regard to the raspberry honey. The flavor is peculiar, yet I do not think it unpleasant. I should not, however, call it equal to the sample kegs of honey you sent us.—In regard to our neighbors, I am sure the circular referred to will do good among many classes. We should, however, be very glad to hear your corrections, alterations, and suggestions in regard to said circular.

"OUR OWN APIARY."

A GOOD REPORT FROM THE HEDDON HIVE; WORKING FOR COMB HONEY.

IN Aug. 1st No., page 605, Bro. Heddon says Bro. Hutchinson seems to be carrying this problem all alone, and that he receives many adverse reports. In all reports I have seen of tests of Bro. Hutchinson's plan of securing worker-comb without foundation, the parties have violated one or more of the principles as laid down by him. One fails to put on the surplus-case at time of hiving swarm; another put in a frame of brood. To succeed in securing all worker-comb with this plan you *must be sure* to put on the surplus-arrangement *at time of hiving*, and not next day nor next week, as some report doing, as in that case they will *build only drone-comb*, if a prime swarm, and strong enough to be worth any thing for surplus honey.

I am using the new Heddon hive this season, and have succeeded in getting as much surplus honey without foundation in the brood-chamber as with it, and the brood-frames are full of nice worker-comb which cost nothing. I use one section of the hive with foundation starters not over one-half to one inch wide, in the brood-frames, with queen-excluding honey-board above, and put on a case holding sections before I hive the swarm; part of the sections were full of foundation, and part with only starters. Others I arranged the same, except I filled the brood-frames full of Dadant foundation, and the colonies with empty frames have made as much surplus as those with full frames; and in neither case did they build drone-comb in frames or sections. In one experiment I used hybrids with full and with empty frames; in the other, Italians. The swarms hived on full frames in both cases were stronger than those on empty frames, and with this seeming advantage failed to come out ahead.

QUEENS AND SWARMING.

I am convinced, from experiments with several colonies this season, that the young queens do not hatch until a very short time before a second swarm leaves, and that the worker-bees control all swarming themselves. Several years ago I saw queens fly in less than one minute after coming out of the cell; and several times, on cutting out queen-cells, I have found no queen hatched, even when the queens had been calling one or two days, but with the cap of cell cut nearly off; and as soon as they were taken out of the hive the young queen would come out. I also had a colony of blacks in which the young queen was calling before they swarmed; and by taking the frame containing the young queen I made another colony which has never swarmed, and this is the fourth season since then. This season I have tested it by waiting two days after I heard the queens calling, and in no case did I find a queen hatched, but the cap cut loose on one cell; and as soon as the frame was taken out of the hive the queen hatched; and by cutting out all other cells there were no second swarms. If the bees decide to swarm after the prime swarm, they keep the first queen from hatching when she wishes to; and then she begins to call, and the other queens in cells old enough answer her; and when they are about ready to leave they allow one queen to hatch; or if they intend to send out only one second swarm, they let all queens old enough hatch and go with the swarm. If they decide not to send out a second swarm they allow the oldest cell to hatch as soon as the queen is ready to come out, and then destroy the other cells, and you hear no calling of queens. 9—JOHN C. GILLILAND, 15—24.

Bloomfield, Ind., Aug., 1886.

SWEET CLOVER, OR MELILOT.

FRIEND GREEN GIVES US SOME NEW AND IMPORTANT SUGGESTIONS IN REGARD TO THE PLANT AND ITS HABITS.

THERE is a great deal of sweet clover in this locality, growing along the river-banks and other waste places, as well as along the roads, which in some places are lined with it for miles. I find that most persons are apt to regard it as a nuisance along the roadside, and many land-owners wage war on it with more or less persistency and success. Some of the objections which they make to it are well founded, while others are unfounded or unimportant.

The principal reason why it is objected to, I think, is the fear that it may prove a noxious weed. It is a strong, rapid grower, readily becoming established, usually holding its own tenaciously when once it gets a start, killing out other plants, and spreading from year to year. These are the recognized qualities of the worst weeds; and the farmer who sees it march along the highway and settle down in front of his place, as though it had come to stay, is apt to be alarmed at the thought that some day it may take a notion to invade his fields in just that way. His fears are groundless, though. Its seed will not start in a close sod; cultivation readily kills it; and even after it has taken complete possession of the soil, close mowing, so as to prevent any seed from maturing for two successive seasons, will eradicate it completely.

I have ridden for miles along a road where all the space between the fences, except a narrow wagon-track, was thickly covered with sweet clover, yet not a single plant was to be seen inside the fields. I have occasionally seen sweet clover growing inside the fence along the roadside; but it is a suggestive fact, that it is almost always the old tumble-down fence that lets the sweet clover through, while a good fence keeps it from the well-tilled fields beyond, as completely as it repels stray stock. There is a moral here, if you go deep enough.

The most reasonable objection to sweet clover along the country road lies in the fact that its tall rank growth often makes a close hedge four or five feet high along each side of the narrow wagon-track, thus cutting off all breeze from the horses. This close hedge, too, sometimes makes it difficult to turn out far enough to allow a team to pass. In this locality farmers frequently herd their cattle along the roadside when pasture is short, and these complain that sweet clover occupies the land to the exclusion of grass. Cattle will not eat it except when it is young and tender. Other objections are sometimes heard, most of which will apply quite as well to any other weed.

Now, what can we say in favor of sweet clover to the man who cares nothing about its value to the bee-keeper as a honey-producing plant? I can only say that it often takes the place of less desirable plants, and that its modest blossoms with their grateful perfume combine to render the highway beautiful and fragrant. Can we say any thing more practical? I hope some one can give us reasons more convincing to the average farmer, why this valuable honey-plant should be allowed to grow on the roadside.

Many who object to the rapid spread of melilot on the highway, accuse the bee-keeper of planting it, when they themselves not only cultivate the ground but sow its seed. Sweet clover, unaided, can do little to extend itself. Its seed is too heavy to be carried far by the wind, and it is not provided with any means of attaching itself to passing objects. The most efficient agent in distributing its seed is the man who leaves the ordinary track for the roadside when the roads are muddy in the spring. In this way the surface of the ground is broken up and prepared for the seed, while the wheels of his wagon and the feet of his horses, sinking into the ground where seed fell the autumn before, pick up portions of the soil filled with the seed and carry it along for rods and sometimes for miles, and there drop them to form a new nucleus of growth. Sweet clover is apt to spring up wherever any grading of roads is done; and the man who plows the roadside for the purpose of scouring his plows, though an enemy to humanity in general, is a friend to the bee-keeper in a sweet-clover district.

While under favorable circumstances the seed will grow and do well if sown at any time of the year, it will be much more apt to grow on uncultivated ground if sown in the fall, so the snows and rains of winter and spring may beat it into the ground.

You are probably right as to the cause of the sooty color of the honey sent you by friend Muth. The sweet-clover honey gathered here is nearly if not quite as light colored as that from white clover, while the flavor is, in my opinion, superior. When the honey is unmixed it requires no expert to tell that it was gathered from sweet clover, especially if freshly gathered. In extracting newly gathered sweet-clover honey, the current of air coming up out of the extractor is laden with a perfume as distinct and unmistakable as that experienced by holding a bunch of the blossoms to the nose. We had promise of a good yield from sweet clover, and indeed it started out well; but the long drought has checked its yield so that what honey we get is considerably mixed with that from other sources. If it were not for this I would send you a sample of the honey, which I think would compare favorably with any you have ever seen or tasted.

Dayton, Ill., Aug. 10, 1886. J. A. GREEN.

Thanks for the additional facts you have given us in this matter, friend Green. I believe you are right in regard to its propagation and extension along the roadsides, by its being carried along by vehicles in the way you suggest. I am glad to have my opinion corroborated in regard to the quality of the honey. I should like to know if anybody has been successful in raising the plant by the acre. It seems from the above, and from what others have written in regard to it, that a different treatment will be necessary from that given to ordinary cultivated plants.

A VISIT TO OLIVER FOSTER'S APIARY.

FRIEND BRUBAKER GIVES US A PEN SKETCH OF IT.

AFTER two months of constant work in the apiary I was thoroughly tired. The dry weather put a sudden stop to the honey-flow. After basswood bloom, and while the bees were taking a little rest, I concluded to take a little play. I had written friend Foster a line, stating I was going to the east part of the State; and as I would pass within a few miles of his apiary, if agreeable I should like to stop off and visit him and see his methods, etc. He not only informed me, by letter, that he would be pleased to have me call, but also said he would meet me at the depot.

On the 29th of July I took the train at Maxwell, and was soon speeding eastwardly over the fertile prairies of our beautiful State. The effects of our all-summer's drought were visible on all sides. The pastures, instead of wearing a mantle of green, as is usual for this season of year, were all dried, and "brown and seer." The dry beds of brooks and streams, the wilted corn, the dried-up appearance of gardens, and the many fires all along the 130 miles I traveled, which had originated from sparks from the engines igniting the dry grass, all plainly told of the serious effects of the protracted drought.

Reaching Mt. Vernon at 10 P. M. I took lodging at the hotel, instead of going to friend Foster's. After a sound sleep I was up at five, ready for a walk; but the little city was all silent in slumber at this early hour. Naught but the sound of the melancholy katydid, and a few low notes of birds were heard to break the silence. A few minutes' walk brought me to a point on the shady street where a pleasant landscape was presented to the sight. Nestling down in a small valley in the midst of a shady clump of trees, stood a cosy little house. To the south, near by, stood a large number of hives, arranged in blocks and alleys. Close by were the work-shop and honey-house, all neatly painted. I recognized this at once as being "the place."

On entering the apiary the first object that especially attracted my attention was a little girl-baby, about two years old, standing near the corner of the house, with little curls reaching down over her little forehead, calling for papa. I felt somewhat disappointed when the timid little darling refused to shake hands or enter into any conversation. It was only a few seconds after when I introduced myself to the "boss of the ranch," whom I found in the shop, and in a very short time we were talking bees and honey and fixtures as if we had always been acquainted. Mr. Foster is a young man, 29, full of vim, and a lover of his chosen occupation; and, judging from the number and character of his apiarian fixtures that he has invented, it is easily seen that he is possessed of more than ordinary inventive genius. He has in his home apiary 225 colonies; and located about 5 miles north are 100 more —in all, about 325. Up to date he had extracted 10,000 lbs., and taken 4000 lbs. of comb honey; but, like some more of us, he lost considerable honey by not having every thing in readiness quite early enough. He has also sold and shipped 126 nuclei, at an average of $3.43, besides quite a good number of queens by mail. After figuring up his profits mentally for a few moments, I was almost ready to believe what the landlord at the hotel had told me the evening before, when, on inquiry as to whether he knew a bee-keeper by the name of Foster, in the town, "Yes," said he; "I knew him when he started in the business ten years ago, a poor boy, and now he is making more clear money, I think, than any other man in town."

Whether this is strictly a fact or not, a glance at his premises tells of prosperity; and while he works hard to make it win, I was led to think, while in his little home, "No wonder his business is prospering." When, at the beginning of the day's labor, though a very busy time, the Bible, that best of books, was taken from the stand, and from its holy pages a chapter was read, and an humble invocation asked of the Dispenser of all blessings. How could it well be otherwise than that, with hard work and the blessings of Heaven, a man should prosper? I think I never saw so many colonies together, where all were so uniformly a fine type of Italians. I left, much benefited by my visit, and *almost* missed my train in the evening for having been absorbed in conversation with friend F.

I must quit now, short off. I hope no one will think hard for my giving my friend such a friendly notice.

So far as I have been able to learn, honey is selling at about 10 cents for extracted, and 12½ to 15 cents for fine pound-section honey.

Maxwell, Iowa, Aug. 2, 1886. D. E. BRUBAKER.

Many thanks, friend B. We have enjoyed every word of your account of your visit, from the curly-headed little girl to the time you almost missed the train; and especially that part of your talk where you mention friend Foster's taking down the Bible at the beginning of each day's work.

FOUL BROOD, AND ITS MANAGEMENT.

DIRECTIONS FROM PROF. McLAIN, OF THE U. S. APICULTURAL STATION.

MR. E. R. ROOT:—Your father told me last week that you were having some trouble with foul brood. I told him that I would send a prescription for the cure of foul brood, and also a prescription for use as a preventive.

Take of soft water, 3 pints; of dairy salt, one pint. Use an earthen vessel. Raise the temperature to 80° F. Do not exceed 90°. Stir till the salt is thoroughly dissolved. Now add one pint of warm soft water in which has been thoroughly dissolved four tablespoonfuls of bicarbonate of soda (use the crystal). Stir thoroughly. Add to this mixture sufficient sugar or honey to sweeten it, but not enough to perceptibly thicken it. Now add ¼ oz. salicylic acid. Merritt & Co., of Cincinnati, make a pure salicylic acid from the oil of wintergreen (Konk's solution of salicylic acid No. 1). Mix thoroughly. Let this mixture stand for two hours, when it becomes settled and clear.

Treatment.—Shake the bees from the combs, and extract as clean as possible. Now thoroughly atomize the combs, using the mixture and a large atomizer. The tinsmith can make a good one for 25 cents. Return the frames to the colony.

If there is no honey to be obtained from the fields, feed honey or syrup to which has been added 3 tablespoonfuls of the mixture to each quart of honey or syrup. Stir well. The honey just extracted may be used without injury to the bees, if the mixture is added; but no more should be furnished than is consumed. Atomize the colony two or three times more, simply setting the frames apart so as to direct the spray well over the combs and bees—not brushing off the bees; three or four days should intervene between the times of treatment. The last may be given on top without removing a frame.

As a preventive, apply on top of the frames, or in any way by which the bees may get it. Also burn old dry bones to an ash, and pulverize. Mix up a gallon to each 50 colonies in the apiary, of the above mixture, adding enough sugar or honey to make it very sweet (say two or three times as much honey or sugar as would be a proper quantity for use in the atomizer). Stir in a full half-pint of the powdered bone ash. Place this gallon of mixture in, say, four shallow vessels—perhaps bread-pan feeders with floats on top—and stand these four in different parts of the apiary. You will be surprised at the rapidity with which the depleted colonies will recuperate and grow strong again.

If you fear that the exposure of sweets in the apiary will induce robbing, the mixture can safely be fed the customary way on top of the frames in the hive.

I would recommend that you give the entire apiary one application of the mixture prescribed *for cure*, as this treatment frequently prevents the presence of the disease where it was not before possible to detect it.

The quantity prescribed for use by means of the large atomizer is sufficient to treat 150 colonies. Not reckoning the sugar or honey used, the cost will not be more than 15 cents. I have prescribed this treatment with entire satisfaction and uniform success for the past two years.

I will mention the facts in two or three of the apiaries for which I have prescribed this treatment.

1. Number of colonies in the apiary, 46; number apparently diseased, 13; number actually diseased, 28; disease so far progressed that the stench was very offensive in the yard; bees crawling out of hives to die, by tens of thousands; effect of treatment apparent in one day; a permanent cure in each case.

2. Number of colonies, 60; serious cases, 38; combs black and putrid; a few had already been burned; effect of treatment apparent at once; a permanent cure in each case.

3. Number of colonies, over 150; number of colonies diseased, 60; bees swarming out; stench from hives nauseating; combs black and rotten; brood putrid; whole apiary treated; disease immediately arrested; effect of treatment on affected colonies instantaneous, even on apparently hopeless cases; every colony cured; disease eradicated, leaving no trace behind. Colonies soon all strong, healthy, and prosperous. For the purpose of further experiment, the combs of healthy and diseased colonies were exchanged; combs from diseased colonies being given the healthy colonies, and the combs of healthy colonies placed in the diseased colonies. The treatment was applied to both alike. In every case the disease would immediately disappear, and in many cases the diseased colonies were soon more populous and prosperous than those which had had no disease and had been undisturbed.

This treatment, which is simple, cheap, and easily and rapidly applied, seems to be efficacious in the most virulent forms of foul brood, and seemingly furnishes immunity from the dreaded scourge.

Aurora, Ill., Aug. 6, 1886. N. W. McLain.

P. S.—The remedy for foul brood—the formula for making and applying, which I sent you, effectually eradicates the worst cases in about 12 days, without the cleaning of a hive or melting of a comb. I am glad to hear that you have no need for it in your apiary. The disease described in Gleanings, as being in your apiary, is, I think, not foul brood. If you have any more trouble with it I can tell you what to do. N. W. M.

U. S. Apicultural Station, Aurora, Ill., Aug. 17.

HOW I HIVED A SWARM UNDER DIFFICULTIES.

HOW A BOY OF 63 SUMMERS MANAGES TO CLIMB A TREE AND TAKE DOWN A SWARM.

ON the second of last month, between three and four P. M., while working in the field I was startled by a swarm of bees passing over my head. I immediately followed, but could not keep up with them, on account of the fences and fields of grain. I noticed what direction they took, and returned, discouraged, to my work. About 6 o'clock I took a stroll through a thin piece of woods to a small creek that runs about ¾ of a mile from where I write. I looked up the trees, to see if I could discover any bees, but to no purpose till I came to cross a fence. In doing this I turned to look back, and discovered a large swarm of bees on the outside small limb of a blackwalnut-tree, about 50 feet from the ground. It looked very tempting; but the question came, how to get it. No ladder was long enough, no long-handed saw to be had, nor anybody to lend a helping hand. I got a handsaw, which I tied round my neck, a box with a frame of empty cells and 6 other empty frames. In trying to climb the tree I found it was too large around the body, in order to reach the first branch. I got a rail, crawled up so far that I could just touch the branch; but when I got on it, I found the next branch still further off. Persevering, and not minding a little skinning of my legs, I reached the second branch, when I had comparatively easy work to reach the branch on which the swarm was hanging. I sawed it off; but in falling it stuck fast to a lower branch, the bees meanwhile ascending to a higher branch, which I cut off immediately, as I reached it, to prevent them from clustering on it. They did not go further up, so I descended, cut every branch on which they lodged, as the branches stuck till the whole concern came down with a crash, smashing the cover to the box. I descended as fast as I could, covered the box with an old coat I had taken with me, and began shaking the branches I had cut off, in front of the box. As soon as I had one clear of bees I carried it off, till I had all the bees pretty well on the ground. Then I picked up a little dry wood, made a smoke to hurry up business, as I wanted my supper, for the sun was going down. I managed to reach home shortly after sundown, with my swarm, carrying it before me, and such a heat they gave off! They are blacks, and I don't know where they came from. In six days they filled 10 empty Gallup frames, and are uncommonly docile. I think the whole business was pretty well done for a boy of 63 summers, not having a veil or hat on, nor being stung once.

MELILOT HONEY SMOKY, AND WHY.

The atmosphere of large cities is heavily charged with coal smoke, which spreads for miles around in such small imperceptible particles that one often does not notice it till he passes his hand over a leaf or flower, when it will become colored black, especially when a little damp. Is that not the cause of your melilot honey being smoky, as we do not know any thing about its being smoky around here? F. J. M. OTTO.

Sandusky, O., Aug. 10, 1886.

PREVENTING INCREASE, AGAIN.

MR. HEDDON'S CRITICISM.

ON page 562, Mr. Heddon says: "Referring to page 529, on 'Preventing Increase,' it is quite easy to see why Mr. Robbins failed of success," etc. Ever since reading that, I have been wondering what it is that can be so easily seen. I know better now than I did when I wrote the article referred to why I failed; but I gave no intimation of it there. Is it because I was careless, or did not follow the method properly? or was it because of the swarming mania of my bees? Please do not be afraid to speak out, Mr. Heddon. I might add here, that I have not known a failure of said plan when properly followed this year, although the swarming instinct of my bees seemed about tripled, more or less, but I have been unable to practice it much.

We are too apt to render "snap judgment" concerning these things. I have faith in this method; and because some of us may fail with it, or any other such devices, is no proof that the principle of it is not correct. My mother can take Graham flour, an egg, with some salt, soda, and buttermilk, and make Graham gems that will fairly melt in one's mouth. I might take those same ingredients and follow her directions, and make nothing good but a good failure. Should I conclude that flour, salt, soda, buttermilk, and egg, will not make good gems? Nonsense! You see, it all depends upon how it is done.

While I am on this subject I would say that a great deal depends upon adaptation. Our gifts, habits, and conditions, are so diverse that we can not all do things best the same way, and we must have systems adapted to our ways. My mother can make the best gems, her daughter-in-law the best cake. I certainly do not believe that the Simplicity is the *best* hive, but A. does. It suits him—it does not suit me. Adaptation, usage, conditions, these apply to little things as well as great; and if we would bear this in mind we would not make so many confident assertions in the controversies over methods and systems in apiculture. This is not all, but I shall stop here. You see I have wandered; but I have done so because one thought suggested another.

THAT QUEEN-EXCLUDING HONEY-BOARD.

I am bound to have a queen-excluder of some kind, and I believe that the one illustrated on page 613 is just the thing. I have not been nearly satisfied with any thing of that kind that I have seen yet, except that one. But the board, as Mr. Heddon describes it, has the bee-space all on one side, and is not adapted to the reversible hive. On page 93 of "Success in Bee Culture," he says: "The queen-excluding metal works into these one-half bee-space honey-boards admirably; and for all I can see at present we had better use the metal when we use queen-excluding honey-boards." Is Mr. Heddon or any one else manufacturing such a honey-board?

EMPTY BROOD-NESTS.

I do not intend that friend Hutchinson shall carry this problem quite all alone. If my help is of any advantage he shall have it. I am confident that his system of hiving swarms upon a limited number of frames—empty frames at that—with surplus room above and queen-excluders between, is as near just the thing as we can get. The system fits in every part. Theory and my experience, I take it, both confirm it. True, many of my bees will build drone-comb, however I may work them; but this I attribute to their everlasting irrepressible disposition to swarm. If I can ever control that, I think I shall practice that system altogether. 4—GEO. F. ROBBINS, 57—93.

Mechanicsburg, Ill., Aug., 1886.

Friend R., we stand ready to make any kind of a honey-board anybody wants —part metal, part wood, or all wood or all metal, and we will put a bee-space on one side or both sides; but as the matter now stands we don't dare to make up ahead queen-excluding honey-boards of any kind, for they are changing all the while. I for one should be very glad indeed to find it were possible to settle down on some definite arrangement.

MISLEADING STATEMENTS.

IS IT TRUE, THAT CERTAIN HIVES GIVE A LARGER YIELD OF HONEY THAN OTHER HIVES?

BEFORE me lies a letter from an inventor and supply-dealer in which are these words: "The use of my hives and surplus-cases will give you more honey than you now produce, with one-half the labor;" while further on, in this same letter, these words occur: "My methods will beat yours two to one." In one of the bee-papers I noticed it said, not long ago, that *more than double* the honey could be obtained by using certain inventions; and as I consider such statements fallacious, I desire to explain my position in this matter. While I believe there is little difference regarding the labor required in the manipulation of one hive above another, where a term of years is taken into consideration, still it is not from the labor point that I take exception, but to the greater production of honey. Can it be possible that any man can be so blinded as to think that a bee-hive of his invention can gather or produce honey? Elisha Gallup once said, very truthfully, that, "other things being equal, a colony of bees will build as much comb and produce as much honey in a nail-keg as in any hive, and they will produce as much honey in my nail-keg as in yours." From this we see it is the bees that produce the honey, not the hive; and any of the good hives now in use that meet all the requirements of the bees will give as much honey as any of the new ones for public favor. Wherein one hive is better than another is not in the production of honey, but in its being better adapted to suit the wants of the bee-keeper. Because one man wants 50 pounds of honey in sections on the first of October, with his bees in a starving condition below, while another man wants 25 pounds of this honey in sections, and 25 in the brood-chamber, does not alter the product of the bees in favor of the first, one particle; yet for a big send-off for certain hives the first is claimed to produce double the profit of the second.

Taking the price of sugar and honey into consideration, together with the labor required to get the first into condition to winter equal with the second, there is not a farthing's difference between the two. Several years ago, when honey was higher in proportion than sugar, the cash income might have been in favor of the former; but that would not change the production of honey any. If I am correct in the above, and I believe I am, how can we afford to throw away all of our old hives and fixtures, and invest in these new ones at a higher price, only to reap the same results except in a different form?

As I was almost if not quite the first one to advocate the contraction system for the production of comb honey, I wish to say that all I claim for it is, that it gives me the larger part of the white honey during the height of the season, in the sections, instead of having the same stored in the frames of an uncontracted hive; while later on, when the honey is not quite as white and showy, but equally good for the bees, I get their winter supply in the body of the hive. To accomplish this end I work somewhat as follows: When a colony swarms it generally has the full complement of frames in the body of the hive, which, as a rule, are full of brood. To hive the swarm I simply take their frames of brood out of the hive, with the few bees which adhere to them, and put them in an empty hive on a new stand, when but five frames are put back in the place of the eight or nine taken out, the rest of the space being filled up with dummies. The sections are now put back, and the swarm returned. They are now left for 24 days, at which time young bees are hatching very plentifully, when the dummies are taken out, and frames of empty comb placed in the center of the hive between the brood for a threefold purpose—to keep the bees from swarming again, to give the queen room of a fresh nature in the center of the hive, and for a sufficient supply of honey to winter upon. The brood in the combs carried away soon give a splendid colony, together with a queen given them, so that they in turn give a good yield of honey, and also get in good shape for winter. It will be seen that my aim has been to get all the honey possible in the sections in the height of the honey season, and, later on, both honey and bees in the hive for winter. The above plan may not suit the requirements of any bee-keeper besides myself, and therein is where lies the difference of views regarding hives; but I claim that, aside from this, other things being equal, there is not difference enough between any of the good hives now in use to pay for the cost it would involve to exchange. G. M. DOOLITTLE.

Borodino, N. Y., Aug., 1886.

Friend D., while I emphatically agree with you about misleading statements, if I understand you correctly I can not quite agree in regard to the amount of labor required to manipulate different hives. Quite a number of successful bee-keepers of my acquaintance use hives which, it seems to me, are needlessly complicated; and I have often thought they might just as well get just as much honey with half the labor, if they had their hives and other things arranged more conveniently; and while I do not believe in changing hives very often, I think there are some kinds of hives, even now in use, that it would be money in the owner's pocket to burn up; that is, if he is going to keep bees and produce honey for, say, four or five years to come. I would, however, experiment pretty thoroughly on a few hives of the pattern that seemed to be an improvement, before going to the big expense of transferring and changing over the whole apiary.

EXPERIENCE WITH FOUL BROOD.

FRIEND LONG TELLS US HOW HE MANAGED TO GET RID OF IT.

THE account of trouble at the "Home of the Honey-Bees," in GLEANINGS for Aug. 1, brings to mind the experience I had some years ago with foul brood among my bees. It was in 1878 or '79 that this scourge first appeared. Where it came from, or what its origin was, I do not know, and can hardly say that I have any idea. When I first found dead brood I supposed it had died from cold, starvation, or some other cause, and the disease made good progress in a number of colonies before I was aware of the danger. Colonies containing queens brought from other places were especially affected. I remember a colony containing a queen purchased of J. H. Nellis; one the queen of which came from a breeder in Canada; one having a tested queen from A. I. Root, were all affected. I do not say that these colonies alone were affected; there were, of course, others; but it did seem that the colonies containing Italian queens purchased were especially bad. After becoming convinced that I had foul brood I set about endeavoring to cure it, and put in practice all information I could get from the bee-journals, etc. This was during the season of 1880. I fed salicylic acid, sprayed the bees and combs with an atomizer, cut out and buried the worst parts of the comb, and got the disease much less, but not eradicated. The spring of 1881 I saw but little of the disease; and it being a good honey season, by fall it seemed to have entirely disappeared. I congratulated myself that I was well rid of the scourge. It proved, however, that, by reason of the remarkable flow of honey we had during August, 1881, the disease had been only covered up; for on examining some hives, Feb. 15, 1882, I again discovered foul brood in several hives. It was indeed discouraging, but I did not feel like giving it up, and accordingly went to work more thoroughly than ever.

I now tried D. A. Jones' starvation plan. I took the bees from the combs and put them in the cellar, from 100 to 125 hours; then I gave fdn. in a new hive, thoroughly scalded all ducks, feeders, hives, etc.; melted the combs into wax, and boiled the honey, and by persistent effort was able to succeed in eradicating all traces of the disease. The hives, I did not use for a year or more, but have since made use of them without any damage resulting.

The spring of 1883 I found only several cells in one colony. I watched very carefully, but since that time have not seen a cell of foul brood in any of my colonies. I have never seen any foul brood in any bees in my neighborhood, and have transferred and handled a great many, and consider myself fortunate that I was able to stamp out the disease. The loss was considerable; but the experience gained is of value, for I am satisfied that I know and can detect the disease. E. C. LONG.

Williamsville, Erie Co., N. Y., Aug. 12, 1886.

HAS THE HOME OF THE HONEY BEES REAL FOUL BROOD?

ONE OF CALIFORNIA'S LARGE HONEY-PRODUCERS.

FRIEND ROOT:—I have just received your statement about having foul brood in your apiary, and I feel in duty bound to write you in regard to it, as I had two colonies last year affected precisely as you described. They began to dwindle away, having combs pretty well filled with brood; in a few days I noticed pin-holes beginning to appear, and then I discovered that nearly all the brood was dead. I was alarmed, thinking I had foul brood surely. I kept a close watch, and soon found that there was *no smell* from the combs; and as I had heard of no cases in the neighborhood I concluded to wait and see the result, supposing that, if it were really foul brood, the rest of my colonies would soon contract it; but I had no more of it. The two colonies gradually dwindled and died, the combs of brood dried up so that the cells contained only dust, so I concluded that it was *not* foul brood at all, and gave myself no further anxiety about it. I kept my bees through the winter, and sold them in March last prior to going to California on a short tour of inspection, and I have not heard of a single case either among those I sold or in the neighborhood anywhere. I conclude that it could not have been foul brood, as I did not destroy any hives or combs, and I have great hopes that you are not so badly afflicted as you fear. Could I have seen your article as just published, or one like it, I should have been terribly alarmed. It was only my ignorance that saved me. You know, "Where ignorance is bliss 'tis folly to be wise."

MR. HARBISON'S APIARY; THE MAN WHO HAS 3000 COLONIES.

I regret that I did not know that you had a brother near San Diego, as I would have visited him while there. I spent a week in one of J. S. Harbison's apiaries. It would make you smile to see what he does and how he does it. He uses the "Harbison hive" only—a large box-shaped hive with a door in the rear, made of redwood lumber dressed on the inside only—no paint wasted on any of them, and in the apiary I was in (425), a large percentage of the hives were corked up with rags to prevent robbing. I was there in April. Bees were brooding up, preparatory to swarming. Mr. Harbison told the employees *not* to be careful in manipulating to keep from killing bees. "Mash them in shutting the door, even if a quart were killed in each hive," he said; they would be "all the better for it." This sounded very strangely to eastern ears, as I have always felt it to be cruel as well as wasteful to kill bees at any time, more especially in the spring. Mr. Harbison told me that he takes no bee-papers, uses no comb foundation, no extractor, nor bellows smoker; his smoker is a large sheet-iron box in which he burns chips, bark, or blocks of wood. He uses bits of empty comb for starters stuck on with stiff glue. With all this method he has accumulated a good deal of wealth, so I was informed. He told me that he had 3000 hives with bees in them. He is obliged to keep his apiaries out in the mountain gorges, remote from the fruit-raising interests, as the bees damage the fruit in the drying season.

Mr. Heddon and some one else have said lately that they know of nobody who ships honey in crates as the bees store it. Every one in California who uses the Harbison hive and case ships in precisely that way. J. W. MARGRAVE.

Hiawatha, Kan., Aug. 1, 1886.

Thank you, friend M.; but I am pretty sure we have had at least one form of real foul brood. In our case the smell was very plainly perceptible in every hive that was affected; and as pieces of comb having foul brood have been many times sent us by mail, I recognized the smell at once. Since our last report it has broken out, or commenced to break out, in several colonies in the vicinity of those first affected. The *bees*, however, from those first affected are now rearing healthy brood, and are doing nicely, so we feel confident we shall succeed in killing it out.—I suppose that, in Mr. Harbison's apiary—that is, in his climate, bees are counted of no value; but even if such is the case, it seems sad to think of killing them needlessly.

A FEW KIND WORDS FROM ONE OF THE OTHER SEX.

HOW TO KEEP HONEY FROM CANDYING.

I HAVE been sitting quiet for a long time, listening to the ideas which the brother and sister bee-keepers have advanced, and enjoyed very much reading the talks about bees in GLEANINGS. Not only about ladies as bee-keepers, but many other things about bees, that I found to be very interesting. Especially do I enjoy reading Our Homes. I think those pieces have done me good, and I have received new light. My husband has taken GLEANINGS over three years, and truly we would not know what to do without it. We have kept a few swarms of bees for several years, and I do love to watch them gather the honey, and work so busily. Sometimes I feel like telling them, after they have laid up a good share for themselves, to gather some for me. I like to help take care of them.

We shall try to winter about fifty swarms. If they live through the winter there will be work enough to do in the spring, and I shall endeavor to leave my work so I can help take care of the bees. Now, sisters, do not be discouraged, but work among the bees if you enjoy it. I think one of God's greatest blessings is the beautiful sunshine and good pure air; and if we are able to be outdoors we may enjoy this blessing. I think we can have better health by leaving our work and cares in the house, and work outdoors awhile. And surely good health helps to make good dispositions and happy homes. I think something as Mrs. A. does about these daughters who sit in the parlor with folded hands, or perhaps employed with a little fancy-work. Help mother do up the work, and then she can find time to sit down as well as you, or perhaps she can leave her work and watch the bees. It will do her good, and you too; for do we not receive a blessing in doing good to others, and trying to make them happy? Go about thy Master's business; find something to do. It may not be in the kitchen, it may not be among the bees; but God has something for each one of us to do. He is calling thee; arise, and go forth, trusting in his word.

HOW TO PUT UP EXTRACTED HONEY.

After reading friend Tweed's experiments with candied honey, on page 617, I must tell how I put up honey to have it keep. My way is pretty much the same as the one laid down in the A B C book. Sometimes I use bottles, but I prefer cans. When I use bottles I have the corks tight, and paste on paper over the cork, letting it come down over the bottle pretty well. I get my honey hot, but think it is better not to boil it. I have kept honey in this way from one to two years. I have put up honey in this way for over ten years, and I never fail to have good luck. Now as to the kind of honey; I did not know that it made any difference. I have put up several kinds. Last year I put up linden and I do not see why that was not as nice as the other. Perhaps there may be, but I have never put up any but that kept all right. I am inclined to think it is more the way it is put up than in the honey. **Mrs. Jennie M. Johnson.**

Rexford's Flats, N. Y., Aug. 14, 1886.

AN INTERESTING LETTER FROM AN A B C SCHOLAR.

A REMINISCENCE FROM ONE WHO IS ACCUSTOMED TO HOLD THE EDITORIAL HELM.

SOME men prefer to become somewhat acquainted before receiving an introduction; but I shall proceed to introduce myself to your many readers without further formality; and after I get through the ceremony they will be surprised to learn that so bright a light has been concealed under so small a bushel for so long a time without being discovered.

Some men were born great; others were born in Ohio, and to the latter class I belong. Nearly forty-five years ago I began to make trouble in this world by being born in a log cabin, situated in the township of Hanover, Ashland County. At the age of ten years my home was transferred to the broad prairies of Illinois. I have made repeated visits to the old farm, and of that particular locality the poet expresses my feelings in the following lines:

I love thy rocks and rills,
Thy woods and templed hills.

Yes, indeed, I shall ever cherish the place of my birth, and hold in sacred remembrance the hardy pioneers who made that wilderness to become productive, and a desirable place of residence. In fact, I sometimes feel as if I could adopt the language of the Babylonian captives when they expressed their deep longings to be released from bondage and return to their beloved Zion.

Was my father a bee-keeper? Of course, he was. Am I a bee-keeper? Of course, I am. There, now, you have the secret at last, and can judge at once what has constrained me to pen you these lines. Box hives were quite fashionable forty years ago, with variations in style and size. My father made a cupboard-shaped hive and put a swarm into it. The colony clustered in one corner, built lots of combs, but never swarmed, and never stored more honey than they seemed to need for housekeeping. Coming to Illinois he adopted the new system, took Gleanings, and ordered one of the first extractors of you ever introduced into this community.

In the course of time I caught the idea that I could keep bees; but having a wholesome dread of stings I delayed the attempt till some five or six years ago. I then bought a colony in a chaff hive, and have wintered a swarm in it successfully ever since. The first season I attempted to secure comb honey without putting starters in the sections, I failed of course. I learned better, and now I believe I can run a small apiary as well as the next man. But it requires study, experience, patience, diligence, and a perfect knowledge of the character, strength, and condition of every colony, as well as the nature of the season. I studied your A B C book morning, noon, and night; I read all the bee-literature I could get hold of, and I made personal tests of nearly every feature connected with the art of bee-keeping. I became infatuated with my bees—as much so as I was with telegraphy while acquiring a knowledge of that mysterious mode of communication; and even at this day, when the novelty of the occupation has worn off, I am thoroughly impregnated with enthusiasm during the honey season.

I keep bees simply for exercise, recreation, and—honey. This season I put in my best licks on a small scale. I had 17 colonies; worked them for all they were worth, and realized my most sanguine expectations in comb and extracted honey. Besides my own, I took care of the bees of a neighbor who can not be at home; and between the two I was kept more than busy during the swarming season; for, perhaps, in the middle of a "heavy" editorial the little boy would rush into the sanctum with the pleasing announcement, "Bees are swarming!"

Having acquired the art of bee-keeping and honey-raising, I am now engaged in working up a market for the nectar, and am succeeding quite well. In the first place, I advertise "judiciously." But, what is "judicious advertising"? some one may ask. Well, in my case it means to advertise in *my* paper. For bee-keepers, as a general rule, it may mean to advertise in Gleanings; and so you see every publisher of an advertising medium might feel inclined to define the meaning of that phrase so as to take in his own paper.

He who with bees would thrive
Will either bust or advertise.

Having advertised, results will follow in due season. Then give good weight and a pure article. Strange it is, that so much prejudice exists against honey. One customer said she wanted none made of sugar; another would buy only one section because it might sour. It may require some time to disabuse the people of these erroneous notions, but I generally succeed after one fair trial.

I weary your patience and crowd your space with what may interest nobody, therefore I bid you God-speed in your endeavors to benefit mankind by sweetening their lives physically and spiritually.

Naperville, Ill., Aug. 6, 1886. **D. B. Givler.**

Friend G., here is our editorial hand. Long may you prosper with the bees and with the editorial pen. I always felt as if it were a pretty good thing to be born in Ohio, but I did not exactly understand why till you made it so plain. I have sometimes wondered if anybody else knew exactly how it sort o' twists one when he is suddenly interrupted in the midst of something grand for humanity, by the announcement, "The bees are swarming," "There ain't any potatoes for dinner," or that the baby had fallen down stairs. If the editor is a Christian (and all editors ought to be, especially if they are born in Ohio), he must look pleasant, stop his editorial, and take the chances of being able to "catch on" where he left off when he gets the bees, potatoes, and baby righted. I am sure you are a Christian, friend G., or you would not love those lines about the "rocks and rills," as you seem to. Let us hear from you again.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

WHEN THERE IS AN ABUNDANCE OF HONEY IN THE FIELDS, WHY IS IT THAT MY BEES WON'T WORK?

FRIEND ROOT: - Can you tell me why my bees do not work more than they do? I often go out and stand by the hives (I have two), and I can't see a bee come out in five minutes, even on a nice day. They are hybrids and Italians, and I think the hybrids are the sauciest ones I ever saw. I get stung three or four times every day at one hive. Both colonies have good laying queens. I have one colony with 6 brood-frames in it, and one wide frame with sections, but they haven't 5 lbs. of honey in their whole hive to-day. They have made a little buckwheat honey, and a very little. There is about 50 acres in blossom within a mile of me, and about 3 acres on the farm I live on, within 500 yards of my bees; yet they do not seem to do much, while my neighbors' blacks are gathering a fine lot. I have my bees standing under two large maple-trees; do you think they have too much shade? The sun does not shine on the hives except from sunrise till 8 o'clock A. M., and from 4 o'clock till 7 P. M. They stand within ¼ of a mile from a lake that is a mile long and ½ mile wide. Do you think they are too near the water, and shall I lose many of them in it, if I should start an apiary here?

Monticello, N. Y., Aug. 10, 1886. F. SOMERVILLE.

It would seem that your hives are not very full of bees, if you can find a period so long as five minutes without any bees coming out or going in. A good strong colony in the middle of the day should have a dozen or two of bees constantly around the entrance, and more or less passing out and in every second.—We are well aware that buckwheat does not always yield honey, although it seems as if fifty acres ought to set them booming. I do not think you can have a better place for them than in the shade of maple-trees. I do not think the lake has much to do with it, unless it is in such a direction from the apiary that the prevailing winds are most of the time blowing from the apiary toward the lake.

STILL THE HONEY-DEW.

For the last four or five weeks there has been a continual flow of honey-dew, there having been no rain during that time in this part of the country. We did not have time this spring to provide hives enough for our bees, and have upper stories on only a few of them, therefore we are obliged to extract from the brood-chamber to prevent swarming, and it takes only a week or so for the bees to have every thing full of the black stuff. There are a good many flowers in bloom which I think contain a good bit of honey, but the bees seem to think honey-dew is the only thing worth gathering; but for my part I wish they would bring in something else, as I do not like it very well. Will this honey-dew get any better when fully ripened, and what ought it to bring, compared with white-clover honey? We fear we shall have some trouble in getting rid of it, as it is our first year that we have had any honey to sell, and shall have to establish a market for it, which I fear will be no small job with such black stuff. However, I have heard some folks say they liked it very well. Please let me know how it compares in value with other honey.

BUCKBUSH HONEY.

Have you ever seen any pure buckbush honey? If you have not I think I can send you some another year, unless the honey-dew rules it out as it has this year. We had some last year; and although it was quite dark I thought the quality very fine. We have a profusion of buckbush in this section, and I consider it a valuable honey-plant, as it comes at a season when very much needed here. S. E. MILLER.

Bluffton, Mo., July 31, 1886.

Honey-dew is improved by being fully ripened in the combs, like all other honey; that is, providing it is thin and watery when gathered. In regard to the price, I do not know what it will bring—much depends on the quality. I would offer it at about one-half the price of good honey. We have considerable of the buckbush in the garden, and the bees work briskly on it every morning, and have for several weeks; but we have never been able to test the quality of the honey.

WHY WON'T THE BEES ACCEPT A QUEEN?

I have two hives of bees, both swarms from the same hive, and neither of them will keep a queen. One of them I have given seven queens, and the other six; they will raise a queen, or keep one until she is about to lay, and then ball and kill her. There is no fertile worker, as there is no brood except what I give them. They are both strong in bees and honey, but they have no drones; but there is plenty in other hives. I keep them with plenty of brood. Can you give any reason for such actions? Do you think if I would give them a laying queen it would answer? RICHARD EDMUND.

Grand Crossing, Cook Co., Ill., Aug. 13, 1886.

Friend E., the conduct of the two hives you mention is very unusual. I would by all means try introducing a tested queen. Our remedy has been to give a colony plenty of brood and bees from another hive—that is, enough bees to induce the stubborn bees to behave.

CAN SECTION HONEY BE KEPT FOR ANY LENGTH OF TIME?

Can section box honey be kept any length of time? I have a number of 1-lb. sections that I should like to keep till winter, as they do not command a very ready sale now. **Mrs. E. Gaines.**

Milliken's Bend, La., Aug. 10, 1886.

You can keep section honey from now until Christmas, or even later, without any trouble at all, and without any apparent deterioration. As a rule, however, after it gets to be one year old or more it has to be sold at a reduced profit. The only conditions required in keeping it is to have it where it will not become damp, or get frozen. Of course, freezing does not, of itself, hurt the honey. When comb honey becomes very cold, and warmer air passes over it, moisture is liable to condense on the surface of the honey. This sometimes dissolves a portion of the honey and then it becomes sour. Besides, comb honey is liable to candy when kept a year or more, and this, as a matter of course, injures the sale of it more or less.

PLANT-LOUSE NECTAR.

My bees are at work on pond lilies, on the leaves, not on the flowers, and it does not make good honey—at least I do not call it so. I have had quite a number taste of it, and have found only one who liked it. The leaves are covered with black lice; and when the lice are the thickest, the bees seem to work the most. The leaves seem to sparkle like honey-drops after it is dried down. Where does it come from? Do the lice make it, or what is it? It is black, and muddy; you will say so when you get the sample; but it does not look so black when extracted as it does in the comb.

My bees are at work on the hickories some, but not so much as on the pond lilies. There are white lice on the hickories, and the honey is lighter than from pond lilies—at least I think the black is from the pond lilies, for the bees are at work on them more, and I am getting more black honey. The honey which I think comes from the hickories is clear and thick, but it is darker than white clover. I can not extract the light to get a good sample, for I have not got enough of it, so I will send a sample of the black, and will send a pond-lily leaf and the hickory. I should like to know whether the lice on the hickory are the same as the ones that made so much trouble a year or two ago. This is my first experience with that kind of honey, and I hope it will be the last. **A. O. Quick.**

Leoni, Mich., July 19, 1886.

Prof. Cook replies:

Dear Mr. Editor:—This is certainly plant-louse nectar. The pond lilies are thickly beset with black aphides, and the hickory leaves with green ones. The leaves also are thickly covered with the cast skins of the plant lice. That this nectar from plant lice is always pleasant and wholesome, as I had thought previous to a year ago, is far from the fact. I am now inclined to the opinion that, when unmixed with honey, it is often bitter and unwholesome. I am sure that, in some cases, I have tasted of a pure article which seemed quite palatable, and to my taste.

You remember what quantities came on the plants from Oregon a year ago. That was very pleasant. I have found the same true of nectar from the elm, cock's comb, gall-louse, and the larch-louse.

Mr. Editor, you have here a good reason to doubt again. Just think how wonderful for these lice to be on pond lilies. How did the colony get to this island home to establish itself? Did the little Lilliput take a swim? and if so, where was the compass to guide him to the desired spot? Again, does the louse work on the upper surface, exposed to the scorching sun, or beneath, to be washed and rinsed and doused at the mercy of the waves? It is the last place we should expect to be pre-empted by a plant-louse; but if to the liking of his louseship, it is certainly a good and safe place.

A. J. Cook.

Agricultural College, Mich., July 23, 1886.

DOOLITTLE'S WAY OF MAKING NUCLEI.

As it is difficult to start nuclei early in the season, I again tried the plan, and in several cases it worked well; but I soon found, as Ernest says, that the old bees in some cases return. I do not believe a safer way could be found to introduce a queen; but in one case after releasing them, the queen, a purchased one, took wing, and the bees began to return; and as they were taken from two hives they were killed when returning to the one, and in the other hive they balled a fine queen and killed her; and then the new queen, not having marked her location well, and it being quite windy, entered another hive, and was also balled. It is safer to release the bees directly on the frames instead of at the entrance, and should also be taken as far as possible from the hive they were taken from. When plenty of young bees are hatching, I don't think it worth while to bother with the plan. **Christian Weckesser.**

Marshallville, O., Aug. 2, 1886.

A HOME-MADE SOLAR WAX-EXTRACTOR; ANOTHER WAY TO MAKE THE REFLECTOR.

I see Prof. Cook is going to try to improve your solar wax-extractor, if he can. I have an improvement which is different from any I have yet read of. I made my box by nailing a bottom-board on an upper story of a hive, to make the box close. I made a frame to fit on top loosely, about three inches deep. I cut a groove in both upper and lower surfaces to receive a pane of glass in each side. I got two panes of glass cut to order to fit this frame, for 35 cts. On top of this double-glass frame for a reflector I made a large hopper, the lower part to fit on top of the glass frame closely all round the edge, and not touching the glass. The sides of this hopper are 14½ inches wide all round; bottom, inside measurement, 16×19¾; top, inside measurement, 30×42½ inches; corners beveled to fit. This gives a good slope to all the sides for reflection. I painted the inside a thick white coat; and if you think the inside of that box doesn't get hot on a sunshiny day, you would acknowledge it did if you were to put your hand inside. I arranged some cleats in the box to support a large circular tin pan to hold the wax to be melted. The pan, which is slanted at the lower edge, has the edge pressed down to form a spout. Underneath this spout I place a half-gallon tin vessel to catch the wax. I have several times filled this vessel during the middle of the day when the sun was hottest. The only fault I find with it is that my box isn't large enough square. I do not have enough square inches, yet it does admirably for small meltings. We have so little sunshine here in Louisiana that I don't know how many pounds it could melt in a day. If Prof. Cook will make a hopper reflector having the sides wide enough, and pitched a proper slope, and painted white, I think he will be able to concentrate a high degree of heat within the box. I have to handle my pan with a cloth to keep from burning my fingers. C. M. HIGGINS.

Hahnville, La., Aug. 3, 1886.

IS THERE ANY SUBSTITUTE FOR GRAPEVINES AS SHADE?

Would you be so kind as to tell me if there is any shrub or vine besides the grapevine that will shade the hive, and be forage for the bees? Where could I obtain seed or plants, and about what cost?

J. H. S. CRONK.

Burgersville, Ont., Can., July 22, 1886.

Friend Cronk, there are many plants and vines that will answer about as well as grapevines. We prefer grapevines because they are permanent, and also handsomer than any other plant that we know of, besides the fruit they bear. Sunflowers, lima beans, tomatoes trained on trellises, and a good many other plants, are used under certain circumstances.

FASTENING SECTIONS TOGETHER WITH A TWISTED STRING.

Bees are doing exceedingly well. I have never seen so good a honey season. I have been trying friend Doolittle's plan of putting queen-cells in a tunnel shaped wire cage, and it is a success. I have also been cutting my sections, to let the bees through every section without going back into the brood-chamber; but I don't know yet the result. Can you tell me how to fasten sections close together so as to stay? I have been puzzled a good deal; but I will tell you how I did it. I use 21 sections on a rack. I set 7 in a row, and take a strong manilla string and tie around to hold the glass in, then take a small stick and twist the string as tight as it will bear, and fasten it; and when the 3 rows are completed I set them on a rack and twist a string around the whole and press them together. This keeps them very close together, but it is too much work. E. S. HANSON.

La Otto, Noble Co., Ind., July 5, 1886.

Your plan of tying up sections with a stout string, to hold glass and all together, is quite old. and I believe the objection to it is usually about like yours. See the plans for cases and crates in our own price list and the price lists of other dealers in supplies as well.

DISTINGUISHING DIFFERENT RACES OF QUEENS.

Referring to your conclusion on page 614, that I can not always distinguish the difference in appearance between Carniolan queens and hybrids, I admit it; and, further, I can't always distinguish between Carniolan queens and Italian queens. Furthermore, you know you can not *always* distinguish between Italian queens and our common black queens. The fact that some imported Italian queens are darker and meaner looking than *some* black queens has certainly long ago been established beyond question; and if it has not, I should like to have the pleasure of putting some specimens in your hands, to decide by *appearances*. There are some Carniolan queens with bronze-colored abdominal rings that I have not seen in any other race; there are others raised from the same mother, that I could not distinguish from fine Italian queens, and still others I could not distinguish from our "black" queens. I believe I can not be deceived about a colony of Carniolan *workers*—I am sure I can not. S. W. MORRISON, M. D.

Oxford, Pa., Aug. 2, 1886.

WON'T ACCEPT A QUEEN, BUT BUILD QUEEN-CELLS.

I found a colony that I can not get to accept a queen. I caged an Italian queen in their hive in a Peet cage, and they refused to accept her all the time. They ball her every time she gets out, and I have her to cage again. They build so many queen-cells that I get tired of cutting them out. The second day after I had queened them I found 63 queen-cells on one frame of fdn. There were 49 on one side, and a good many on the other frames that I didn't count. These were blacks, but I don't think your Holy-Land, Cyprians, or any other kind, can beat them building cells. C. F. GRUBB.

Bridge, Davidson Co., N. C., July 1, 1886.

Sometimes a colony of bees seem determined to rear a queen of their own, instead of accepting one. In that case we generally humor them; that is, we often conclude that we shall get along about as fast to let them do it in their own way.

A MACHINE FOR CLEANING PROPOLIS OR WAX FROM THE TOP-BARS OF FRAMES.

I send you a rough model of a scraper to clean wax and propolis from frames without removing them from the hive. The handle is 7 inches long, and the edge 1½ inches long. I took a piece of a saw-blade for the edge and made the pocket of tin, about three inches deep; it will hold all there will be on almost any hive. From 70 hives I got enough to make wax enough to pay for two or three scrapers. If the frames are all wood they will be firm enough to scrape without holding; but if they have metal corners they will have to be held with one hand. If you think this is worth giving to the public, they are welcome to it. JOHN WOOLSEY.

Bedford, N. Y., July 22, 1886.

I will explain to our readers, that the model referred to is a piece of tin, bent in such a way as to make a sort of pocket. The wooden handle referred to is set into the pocket, and fastened by means of wire nails from each side. When you draw it over the top-bar of a frame, the wax and propolis roll up and go into the pocket so as to amount to quite a saving of time. The question now arises, Do we want our top-bars scraped off clean? Many bee-keepers, and friend Doolittle among the rest, say they do not want the top-bars scraped off — at least friend D. said so some years ago when he paid us a visit. If left on, it gives the bees a passage over the tops of the frames; and while there is a honey-yield it will be filled in almost at once, even if scraped off. Of course, these remarks apply to hives where a cloth or enamel sheet is used over the frame. With honey-boards like Heddon's and others' I believe the top-bars are kept clean; and if the honey-board is kept down in place, probably no accumulations are found on the top-bars.

WHY IS SO LARGE A PERCENTAGE OF MY QUEENS NOT FERTILIZED?

Can you tell me why I lose so many queens at about the time they ought to become fertile? Out of 53 apparently good virgin queens, in full colonies and nuclei, all from swarming cells, only 31 became fertile; all the rest disappeared at about the time I expected them to begin to lay. Is this not an unusually large percentage of loss, or is it so with every queen-breeder? I thought for some time the trouble was in the wrong arrangement of my hives; but it seems not to be the only cause. I have my hives in rows, 12 feet apart one way, and 3½ ft. the other way, so arranged that they "break joints." My hives are large chaff hives, each of which has a 2-frame nucleus in the upper story. This gives me many more nucleus hives than I need, so I use only every fourth or fifth. This, I thought, would prevent the young queens from entering the wrong hive; but the result was, that in some nuclei four queens were fertilized, while in others just as many virgins were lost. With full colonies I have about the same trouble.

Julius Johannsen.

Port Clinton, Ottawa Co., O., Aug., 1886.

Friend J., your hives are too near each other, and too much alike. See what I say in the A B C book about the importance of having them placed toward the different points of the compass, even when they are 7 feet from center to center. Try one nucleus off by itself for a few days somewhere, and see if you do not get better results; and another time and another season you may have good results just where you are; but I should say that 3½ feet is much too close. The bee-keeper who has well-made, nicely painted hives, is more apt to have trouble in this respect than one who has his bees scattered about in hives of all sorts and sizes, because, in the former case, each hive looks exactly like its neighbor.

RENOVATING FOUL-BROODY HIVES.

Having lost all my bees by foul brood, I melted up and boiled all the honey and wax, and such fixtures as would go into a wash-boiler. My hives being too large, I took a length of 18-inch smokestack, set it on end over a grating of iron scraps, scooping the dirt away on one side, for a draft. I then built a fire in it and set one of my hives, bottom up, on top of the pipe, protecting the edges of the hive by a strip of sheet iron laid under them on each side. I regulated the draft by opening and closing it with bits of sod. In a few minutes the hot smoke was issuing from every crevice, and the melted propolis dripping down all around. Some of the hives took fire inside. I threw them right side up on to the ground, and dropped a little water on to the bottom-board, when the hive would instantly fill with steam, and smother the flames. The bees do not seem to dislike the charred wood to live in, and I have found no trace of foul brood among them yet. I got 6 three-frame nuclei from the South about May 15, from which I now have 9 good strong colonies, some of them storing honey in boxes.

HONEY-DEW.

We are having our first experience here with honey-dew. About two weeks ago it appeared on balm-of-Gilead, elm, and burr-oak trees, which dripped so as to smear the sidewalks in places. *Now* the black oaks are covered with it. I find the leaves have a great many little green plant-lice on or under them. I thought I would tell you how, with a few cents and three or four hours' work, I made a machine for perforating frames for wires—capacity 200 strips per hour, but conclude for this time.

Geo. H. Patch.

Stevens Point, Wis., July 19, 1886.

Thank you, friend Patch, for your description of the way you renovated your foul-brood hives. In Our Own Apiary for this issue you will see that we employed a similar plan, only we used steam.

A NEW USE FOR THE SMOKER.

The Williams folks desire me to thank you heartily for the smokers, and so do I. Now I have the job of reading the "Dose of Truth" to them. Although I have always held smoking to be wrong, and chewing too, I never saw such reasons advanced as I find in your pamphlet. I think it should be more generally distributed. The Williamses have found a new use for their smoker; and had I been aware of it two months sooner I would have ordered a thousand or so. I know I could have sold that many. Let me explain: This is a great mosquito country, especially now in the rainy season. Although netting and cheese-cloth bars are in use, they are warm and disagreeable to sleep under. Now, a few rags in the smoker, a few minutes before retiring, set on fire, and the smoke well puffed in all corners, causes the mosquito to leave for that night. Such is also my experience, and I would not now be without a smoker for its cost for a single night.

Fort Ogden, Fla., July 20, 1886. F. Schindel.

THE PROGENY OF MISMATED QUEENS.

I have a dollar queen, one year old, bought of Wm. Cary. All I bought of him with the exception of this one are very nice queens. Her bees are about one-third black, to all appearances, even the old ones, temper not excepted. One-third have two bands, and the other third are very finely marked Italians. This is something new to me, and I should like to know if it is very common, and also how it can be so.

5—H. P. Langdon, 30—50.

East Constable, N. Y., Aug. 3, 1886.

It is not unusual for mismated Italian queens to produce bees variously marked, from real black bees to three-banded Italians. As a general thing, however, a pure queen mated with a black drone will produce one and two banded hybrids.

BEE-KEEPING IN UTAH.

I am doing what I can in a modest, feeble way, to advance the interests of the bee-business in this village of over 2000 inhabitants. There are at present over 260 colonies of bees here in the keeping of 7 different persons, besides 97 colonies of my own, which are getting too large a number for one little old man in one location to handle. I have therefore laid the foundation of another apiary, located very high up in the mountains, designing thus to lessen my labors here at home. This new location is in the midst of a little world of wild blossoms; one succeeding another the whole summer, from the moment the snow is off the ground in spring until frost cuts down all in the fall. Indeed, I have seen blossoms fully defined and developed, but closely folded, lift their heads throughout the fast-melting snows of spring, and in a minute or two would appear, while I yet stood wondering at the thing of life, a beautiful and complete wild blossom standing just in the edge of snow. From these wild blossoms bees gather large stores of honey, some of which I will send by mail in a small bottle. This honey was deposited in old combs carried from here in the winter, wherein were some grains of old honey, a few of which you can see in the bottle, so it is not entirely wild honey, but enough so that it shows the peculiar flavor which I wish you to taste and examine; and, if you have no objections, give me your opinion as to its salable qualities among those well used to choice honey. Perhaps what is pleasant to us is not pleasant to others afar off, reared in a different climate.

O. B. HUNTINGTON.

Springville, Utah, July 20, 1886.

Friend H., the flavor is certainly peculiar, and to me it is very pleasant indeed. I should think the honey would command a good price just on account of this flavor. The same, or something quite similar, has been submitted to me once before. If you will send us, say, a couple of the plants, we will have our botanist name it.

A CARD FROM H. CHAPMAN.

Mr. Editor:—It has not been my purpose to say or write much about or offer any seed of my honey-plant for sale until after the report of the committee appointed by the North-American Bee-Keepers' Association to examine and determine its value as a honey-plant. The committee met at my place July 28th (all but Mr. Manum, of Vermont, who was prevented by unforeseen circumstances). The committee present were A. I. Root, of Medina, Ohio; L. C. Root, of Mohawk, N. Y., and N. W. McLain, of Aurora, Ill. They will make their report as a committee at the next annual meeting of the Association, to be held at Indianapolis, Ind., Oct. 12th, 13th, and 14th. But since the meeting of the committee at my place, members of it have written so favorably of the plant in the bee-journals that I have received a large number of letters of inquiry, requiring so much of my time to answer that I deem it proper, through the bee-journals, to say, I have no seed but the present season's growth, which will not be ready to send out until about the 20th of October next. I purpose to advertise in the bee-journals after the report of committee at Indianapolis. Seed will be sold in half-ounce, ounce, two-ounce, and four-ounce packages. The price will be determined after the report of the committee. All desiring seed are referred to my advertisements, which may be found in all the leading bee-journals in America, after the report of the committee at Indianapolis.

H. CHAPMAN.

Versailles, Catt. Co., N. Y., Aug., 1886.

RATTLESNAKES AN ENEMY TO BEES.

Dear Brother:—The bee-moths got into the weak swarm I had, and they are about used up. I have just put the old combs in the solar extractor, and now have a nice cake of wax. In lifting the hive to move it, the bottom-board stuck to the hive and I found a big rattlesnake coiled up under the hive. The sudden daylight surprised him, and he surprised *me* too; but I recovered myself first, and killed him. I have taken off 100 lbs. of comb honey from my two hives, and the bees are working yet.

THE SIMPLICITY SECTION IN CALIFORNIA.

I took 74 sections into town. Harbison honey is selling at 5 cts. per lb. One of the leading honey-buyers offered me 7½ cts., and said if mine had been whiter he would give me more. One objection is, that on or near the coast the honey is darker than further back. The style of your section is the first they ever saw. Even Mr. Harbison thought they were nice. I am going to hold it for a higher price.

There was a swarm of bees went over the barn today. I thought it was too late for them, or I would have had out some more decoy hives. M. S. ROOT.

San Diego, Cal., Aug. 9, 1886.

Brother Marsh, excuse me for thinking that it was the rattlesnake instead of the moths that injured your weak swarm. We have had several reports of snakes getting under bee-hives and catching the honey-laden bees as they came in, until the swarm was too much depleted to take care of itself. Very likely the moths would come in as a consequence. No wonder you were a surprised lot of you.—I am glad to hear that you are beginning to make modern bee culture "go" a little; but I am greatly surprised to know that so large a city as San Diego should be unacquainted with the one-pound Simplicity section.—I should think it would pay to save absconding swarms in any month of the year in your mild climate.

A SOLAR WAX-EXTRACTOR FOR A NICKEL.

I think I must describe my wax-extractor. It works to perfection, and is cheap. It is taken from your 5-cent counter—a tin wash-basin. Punch the bottom full of ⅛-inch holes; set it in top of a stoneware butter-jar, and put a glass on top. Throw in the wax scraps. A wooden frame around the glass would keep it from sliding off or breaking easily, but it is not necessary. I also have a wooden cover to the jar, with a beveled hole in the top, which allows the extractor to be tipped toward the sun.

JAMES EVANS.

Schaghticoke, N. Y., Aug. 24, 1886.

Very good, friend E.; but it seems to me that your stone jar and pane of glass ought to count something in footing up the expense of the apparatus. Wouldn't one of our 15-cent strainers answer better than the wash-basin? They are about the size of the basin, with an opening at the bottom, covered with brass strainer cloth. The polished sides of the basin would help to reflect the sun.

CARBOLIC ACID.

In the *British Bee Journal* for Aug. 12, 1886, we find the following:

> I have just made my first experiment with carbolic acid, in order to remove a super, and have been any thing but successful. I made a square cage of iron gauze, inserted in it pieces of sponge saturated with the acid, and placed it inside my Bingham smoker, then proceeded to drive the fumes into the super, at the top, but it produced not the slightest effect so far as I could see, for the bees rushed out as fast as they could from between the sections; and when, after waiting a short time, I removed the super, my hands, though perfumed with Calvert's No. 5, received more stings than they have enjoyed for a long time. I had on a veil, or I should hardly have been able to see to write this. I am greatly disappointed, as I had looked forward to getting rid of the trouble of the smoker, with the inconvenience of its frequent extinction.
>
> J. COVE JONES, *Loxley, Warwick.*

This accords very well with Mrs. Chaddock's experience in a late issue. May be, however, that both of the above parties have failed to comply with all the conditions required. We have ordered one of the smokers from the inventor, and will report promptly as soon as it arrives. We are informed that it is now on the way.

HOW MUCH SHOULD BE FED A COLONY DAILY DURING A DROUGHT?

Bees were held back by a drought of some 60 days. But three very heavy rains have turned the tables. Does it pay to feed continuously straight through such a drought? If so, how much per day, per colony, etc.? W. M. BOMBERGER.

Harlan, Iowa, Aug. 2, 1886.

Friend B., I think it does pay to feed continuously right through a drought, especially if you wish to increase the number of your stocks. I do not know how you are to give a definite quantity of bee-feed daily, so much depends on the strength of the colony, and they almost always get more or less from the fields. The thickness of the syrup has also something to do with it. I would suggest a teacupful a day of syrup containing about twice as much water as ordinary honey; that is, if I used honey for feeding I would dilute it first with an equal quantity of water, especially if I wished to promote brood-rearing.

REPORTS ENCOURAGING.

A GOOD YIELD; ARE BEES APT TO DIE IN WINTER AFTER A HEAVY HONEY-FLOW?

I STARTED with four colonies of bees this spring, and from three frame hives I have taken 250 lbs. of comb honey, and they have 32 sections more, nearly filled, apiece. My box hive has filled only two boxes, about 20 lbs. This has been a wonderful season for bees here. I went according to your instructions in the A B C book, and kept my bees at work by lifting up the bottom and driving them in and giving them more room whenever they began to hang out; and the consequence is, that I got a good deal of honey and only two new swarms; but if I can sell my honey for what it is worth I will buy bees by the pound in the spring. Honey is selling for 12½ cts. for comb, and 8 cts. for extracted. Every one's bees have done well, especially those in frame hives. I took 150 lbs. from one hive (hybrids), and still they are at work. There is a great deal of buckwheat sown this year, and we expect quite a little honey from that. Last year was so wet that bees did scarcely any thing except to gather pollen and raise bees; and there was such a rank growth of heart'sease and late honey-producing flowers that the average loss during the winter was about 1 in 30. Now I wish to ask you if next winter will not be pretty hard on bees on account of the great amount of work they are doing this summer? and what shall we do to make our colonies strong for winter? I have an idea that, when there is a great flow of honey, bees do not raise so many young, and that those that remain in the hive during winter are more or less exhausted from field work, and would die before spring, and leave the colony so weak that it would die. L. W. RICH.

Lamont, Buchanan Co., Ia., July 27, 1886.

Friend R., I do not think bees are more apt to die after a heavy flow of honey, but, rather, to the contrary. The Italians will, however, fill their combs to such an extent as to prevent brood-rearing where room is not given them in which to store their surplus honey. But bee-keepers nowadays are seldom known to neglect giving the bees storage room when honey is coming.

$7.00 CLEAN CASH FOR A SINGLE CRATE OF HONEY.

I have kept bees for quite a number of years, and never saw a movable-frame hive until last spring, and then I made it myself. Mr. E. H. Cook, of Andover, Conn. (of course, you have heard of him, for he has sent you a good many orders for goods, and a tiptop upright honest man too), sent me the dimensions for making the L. hive, and then I bought two tested queens from him, and had him come and transfer my blacks into the movable-frame hives for me. I find I can get some good honey now which I never could do in the common box hive; and, furthermore, I never sold a pound of honey before I had my bees transferred; but now I can sell all the box honey my bees can make. There was a merchant who came to my house last Tuesday to buy some honey of me, and I took a section case off from one of my hives, and he gave me $7.00 in clean cash for it. That was 25 cts. per pound for it, and he wanted all I had to spare this season at the same price. L. I. WALDO.

Merrow, Tolland Co., Conn., July 30, 1886.

350 LBS. OF HONEY FROM ONE COLONY.

Bees have done well up to date, but I think the honey season is over. Best yield from one swarm, extracted honey, to date, 350 lbs. SAMUEL LISTER.

Newton, Iowa, July 12, 1886.

REPORTS DISCOURAGING.

JUST PULLING THROUGH.

BEES are just pulling through. I shall have to feed sugar to winter them, if they don't do better. I am out nearly $100 this year; and if I had to look to the bees for it, I never could make a start in the way of paying my debts. But, thank the Lord, I have more than bees to look to. A. L. LIGHT.

Groveland, Ark., Aug., 1886.

LESS THAN 100 LBS. FROM 20 COLONIES.

The honey crop amounts to nothing with me this season. Out of twenty colonies, spring count, I got less than 100 lbs. of honey, and I shall have to feed several hundred pounds of sugar for winter. I now have 39 colonies in a thriving condition, and am not a bit discouraged. L. H. ROBEY.

Worthington, W. Va., Aug. 4, 1886.

A POOR SEASON IN ENGLAND.

This has been a very bad season for business, as June was so very cold. C. N. ABBOTT.

Fairlawn, Middlesex Co., Eng., July 21, 1886.

NOTES AND QUERIES.

BEES NOT WORKING ON BASSWOOD.

THE honey season has been a good one here, but is just about closing, owing to dry weather. I have three basswood-trees in my yard; but this year the bees paid them very little attention. This surprised me some, as the trees were never fuller of bloom.

Woodstock, Ill., Aug. 2, 1886. A. W. CUMINS.

CHAPMAN HONEY-PLANT.

Chapman honey-plant lasted only from July 20 to Aug. 10. Rocky-Mountain bee-plant is still in bloom, and will be till frost. A. J. COOK.

Agricultural College, Mich., Aug. 17, 1886.

HOW TO KILL CANADA THISTLES.

The easiest way to kill Canada thistles is to cut them low in the ground, and pour about a gill of coal oil on the stump. This treatment has succeeded well in Northern Indiana, where the seeds are brought by cars from Canadian railroads.

Vincennes, Ind., July 17, 1886. E. BURKE.

A CORRECTION.

In Aug. 1 GLEANINGS, p. 620, I was surprised to see in my article, 6th line, "Cast skins of spiders;" it should be "Cast skins of aphides." This showed that lice had been there. I like the solar wax-extractor *very* much. A. J. COOK.

Agricultural College, Mich., Aug. 4, 1886.

TWO QUEENS IN A CELL.

I send you by this mail a curiosity. A queen-cell I had put into a nucleus did not hatch; and on opening it I found two full-grown queens. Was this ever known before? What made them die?

Bristol, Vt., July 4, 1886. E. O. TUTTLE.

[I think we have had reports before of two queens in a cell. Probably they died because there was not sufficient nutriment or sufficient room for both of them.]

SHALL WE SUPERSEDE QUEENS WHEN THEY ARE THREE YEARS OLD?

I have a nice queen that will be three years old in August. I have been advised to supersede her on account of her age. Shall I do it? S. R. FUSON.

Rockville, Ind., July 12, 1886.

[Friend F., I would supersede any queen that did not keep her brood-nest full, no matter what her age; and I would keep any queen that *did* keep her brood-nest full, no matter what *her* age; that is, I would not destroy any queen because she happened to be so many years old. Make her *work*, rather than her *age*, decide the matter.]

BLACKS WORKING ON RED CLOVER.

I have seen the blacks working on red clover as thick, seemingly, as the Italians. There was lots of buckwheat in blossom too. Are the Syrians, Holy-Lands, and Palestines all the same race of bees, or are they all different races? White clover and basswood were injured by the dry weather a good deal here; basswood lasted only about five days.

CLARENCE W. BOND.

Jackson, Mich., Aug. 16, 1886.

[Friend Bond, the Syrians, Holy-Lands, and Palestines are so nearly alike that we might as well call them one and the same thing, although the bees from certain localities give much better results than those from other localities.]

SEPARATORS NOT A PREVENTIVE TO QUEENS LAYING IN THE SUPERS.

I have a number of times found brood in sections where separators were used, so nearly as often as when they were not, that I have about decided that separators or no separators makes but little difference. This matter of brood in sections has become such a nuisance to me that I am going to use queen-excluders pretty generally. GEO. F. ROBBINS.

Mechanicsburg, Ill., Aug., 1886.

OUR OWN APIARY.

AN IMPROVEMENT IN CHAFF-HIVE COVERS.

JUST after the honey-flow we have always been annoyed by a few stray robbers tugging at the ventilators of the chaff-hive covers. At such times there are a few bees which seem to persist in minding every one's else business but their own; and whenever a hive-cover is raised they will dart down into the hive. Situated as we have been with foul brood in our apiary, a few such bees could do a vast amount of harm. Passing through the apiary one day I felt particularly vexed to see a lot of these shiny-backed fellows trying to pass through the ventilator-holes to the chaff hives. It is true these holes were covered with wire cloth on the inside; but why should those bees try to get through it? I then remembered that bees will feed each other through wire cloth. It was evident, that the inmates of the chaff hives were feeding the robbers on the outside through the wire cloth, otherwise the little lovers of ill-gotten gains would have gone home. I accordingly instructed the apiarist to tack wire cloth on the *outside* of all the chaff-hive ventilator-holes in the apiary. This would make ⅜ of an inch space in each ventilator, between the strips of wire cloth. When the chaff-hive covers had been so fixed, the result was very satisfactory; for not a robber would bother himself with those ventilators; in fact, we have wondered why we had not done it before. Try it, brother bee-keepers, and note the results.

We are sometimes annoyed by bees getting under the covers of Simplicity hives; and it has occurred to me, Would not this trouble be aggravated if the union of the cover and body were made by simply a plain unbeveled edge? The beveled edge of the Simplicity will permit of considerable warping of both body and cover, and yet not permit any robbers to get into the hive. Where plain edges meet it has seemed to me that a very slight degree of warping would start robbers. I may be mistaken. Perhaps some one can inform me to the contrary or otherwise. The plain edge possesses some very important features, I am well aware; but I will not take time to mention them here.

THE SIMPSON HONEY-PLANT.

Whatever may be said in praise of the Chapman honey-plant, it would be hard to excel the Simpson in many respects. The bees have been roaring on our patch from morning till night ever since the fore part of July. If you should stand at the end of one of the rows you might see hundreds—yes, thousands—of bees flitting around the little cup-shaped blossoms. Is there any sweeter sound to the bee-keeper than the happy hum of his little servants? How different from the roar when bees are robbing! When I take visitors down to see our carp-pond I always take special pleasure in showing them our patch of Simpson honey-plants. The Chapman honey-plant may yield more honey in a short space of time; but as the Simpson honey-plant continues yielding for two or three months, the aggregate amount of nectar secreted by the latter might equal that of the former. I have thought some of covering a whole Simpson plant with mosquito netting, and allowing it to remain for two or three days. At the expiration of the time, would the cups be running over? I would have tried the experiment, but our plants are from 6 to 10 feet high, and it would be a rather difficult matter to completely cover the plant, branching out as it does like an evergreen. It just occurs to me to put one of our folding tents over a small plant. Well, I will tell you the results next time.

BEES WORKING ON BUCKWHEAT.

Three weeks ago we planted about three acres of buckwheat; and to-day, Aug. 27, it is in blossom, and the bees are working on it at a pretty good rate. I noticed the same happy roar, of which I spoke a moment ago. About 10 A. M., on account of the large number of colonies in this locality, the bees stop work and commence early the next morning.

POLLEN AND MUDDY WATER.

Pollen-gathering continues the whole day. This, together with the buckwheat in the morning, keeps the bees in our apiary just now out of mischief. Yesterday, the 26th, about 2 P. M. I noticed the bees going in great droves south of the apiary. I was not certain whether they were working on the corn or getting water from the creek running about 200 yards from the apiary. Starting in the direction the bees were flying, I found that they were sipping at the muddy water in the creek, in large numbers. No doubt the large amount of pollen being gathered necessitated a good supply of water. As we have been obliged to discontinue the sale of queens since the first appearance of foul brood, we have none but laying queens. The consequence is, that brood-rearing is being carried on more extensively than ever before. It is, therefore, nothing strange that the traffic in pollen and muddy water is brisk.

UNITING SO AS TO MAKE THE BEES STAY IN THEIR NEW LOCATION.

In the evening, when the bees are all in the hive, we unite the two in the ordinary way. At the time we do this we reserve a frame of unsealed brood, and place it back in the hive whence it came. This is done to catch a good many of the old bees, which will be sure to return to their old location. Said bees and the frame of brood are allowed to remain in their old home from 24 to 48 hours, during which time the new order of things, together with the loss of their queen, seems to disconcert them and puts them in a condition to accept any circumstances whatever. At the expiration of a day or so this frame of brood and bees are put back in the colony in the evening where they were first placed. We find in practice that this second returning is pretty sure to make all the bees stay, though sometimes perhaps a dozen old worn-out fellows (not much use) are so wedded to their old home as to go back again even then.

When uniting into chaff hives we find it quite an advantage to put all the bees of the new colony on combs in the upper story, just above the colony already occupying the hive. The brood is placed below in the body of the hive. It will then be a couple of days before the bees in the upper story will go below. When they do they will be more apt to stay in their new location. The returning bees are then caught as before.

HOW WE DISINFECT CHAFF HIVES BY STEAM.

Shortly after foul brood broke out among our bees we had about a dozen chaff hives which had contained diseased colonies. These were set in a row, conveniently located to a steam-pipe. In the evening I donned an old apron belonging to one of the saw-room hands, and proceeded to business. Having attached about ten feet of rubber hose to the aforesaid pipe I shoved the hose through one of the ventilators of one of the hives. The hive-cover was thus permitted to fit tight, and the only exit for the steam was at the extrance — the steam passing from the top of the hive to the bottom. With a boiler pressure of 50 lbs., I let each hive in turn roar and steam from 15 to 20 minutes. In one instance I approached a hive immediately after thus steaming, and raised the cover, being a "lettle" curious to see how hot it was inside. When the scalding vapor puffed into my face and on my hands, I didn't say any thing—no, not so much as "ouch;" but that cover went right back on to the hive, and that right speedily too. I then concluded if the germs of foul brood (if there were any in the hive) were submitted to such a dose as this for 15 whole minutes that they ought to die; if not, they were exceedingly tough. At any rate, if boiling water will kill the disease, I am morally certain *these* hives were disinfected. However, as we have tried to follow the policy of not running any *possible* risks, we shall not put bees in these hives in our home apiary. We propose to use them in an apiary which we intend to locate next year away from home, where we will run more especially for honey. If these hives should give the disease there among a few colonies, no very great damage can be done.

FOUL BROOD UP TO DATE, AUG. 31.

In spite of us, as stated in another column, a few more cases have developed. However, when the apiary was last gone through, only one diseased colony was found, and that was in the very early stages. ERNEST.

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A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

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MEDINA, SEPT. 1, 1886.

If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you.—JOHN 15: 7.

WE have to-day, Aug. 31, 5887 subscribers — a gain of 73 over last month. Many thanks, friends, for your kind support.

A YEAR OF GLEANINGS FOR 15 CENTS.

ALTHOUGH we have sold a good many, we still have a large stock of bound volumes of GLEANINGS for 1876, of which we told you about on page 595. We will dispose of them for 15 cts. each, or 25 cts. by mail postpaid.

FOUL BROOD, AND ONE OF THE DIFFICULTIES IN GETTING RID OF IT.

On page 700 of this issue, friend Long tells us that a good flow of honey may cover up the honey in the hives containing foul-brood germs, so that it will disappear for some time. When this new honey is consumed, however, so that they get down to the old honey in the bottom of the cells, foul brood makes its appearance again. Now, with such a state of affairs I can hardly understand how phenol or any thing else can reach the whole of the trouble. Throwing the honey out of the combs and scalding it, then making the bees clean up such combs and consume the honey before they commence brood-rearing again, might do it; but is it not about as cheap, all things considered, to destroy all combs with their contents, when it is known positively that foul brood is in the hive?

MR. THOMAS HORN.

We are sorry to be obliged to say, that, up to date, Mr. Horn has done nothing toward making his promises good; and, so far as we can learn at present, nothing can be recovered from him by legal means. A few of the friends have seemed to think we ought to hold ourselves responsible because we admitted him into the advertising columns of our journal. Inasmuch as he was responsible, and was so spoken of by his bankers at the time we received his advertisement, we do not feel called upon to make these losses good. Where a man fails by misfortune, or even by deliberate plan, it is quite a different matter from one who gets into the advertising pages of a reliable journal by the carelessness of its proprietors, and thus victimizes its readers. In the case of Mr. Horn, it seems to us that we took all reasonable precaution to find out about him before we received his advertisement; and let it be remembered, that he did business squarely and honorably for a good many months.

ITALIAN BEES IN IOWA.

60c to 85c per lb. Queens, 30c to $1.75, according to kind and time. Also bee-supplies and honey. Order from free circular. **"How to Raise Comb Honey,"** an illustrated pamphlet, just out, price 5 cents. Address OLIVER FOSTER,
13tfdb Mt. Vernon, Linn Co., Iowa.

FOR SALE CHEAP.

100 Simplicity chaff hives, good as new, all painted white; about 1500 combs (nearly all worker), 100 chaff pillows; 100 surplus hives; 100 division-boards, 40 of which are feeders; 100 "Hill's device;" honey-tank holding 1100 lbs., lined with tin; extractor; 100 enameled cloths; 40 colonies of bees, with stores enough for winter. Will sell the whole, delivered on board of cars, for $300; cost me $800.
17d R. W. KEENE, Croppers, Shelby Co., Ky.

4 H.-P. ENGINE FOR SALE.

A Bargain for the man who is in need of a First-Class Engine and Boiler.

This is one of B. W. Payne & Son's Eureka engines, the same that we advertise in our catalogue. It has run 3 months since it was new; has had a 10-foot galvanized-iron smoke-stack added, and is in perfect running order. The man who is holding it had to put in a larger one to meet the demands of his trade. The price of a new engine and boiler complete, no stack, is $275.00; but to make a quick sale we will sell this one with the stack for $225.00, free on board cars at Higginsville, Mo.

A. I. ROOT, MEDINA, OHIO.

STORE-KEEPERS, LOOK HERE!

"HANDY" POSTER-HOLDER. Takes the place of tacks, paste, and pins. By mail, 1 pair, 5c.; 3 pr., 10c.; 5 pr., 15c.

"ACME PAPER HOLDER; to be put up on the outside of the house, for the newsboy to slip the daily into to keep it from blowing away; on the inside, to hold the last paper until you can get it read through (holds any small article, as towel, handkerchief, pamphlet, magazine, almanac, etc.); in a lawyer's office, to hold deeds, abstracts, envelopes, letters, papers of all kinds, etc.; in all kinds of mill and store offices, to hold any small flat article; and on the inside of the gate, to hold the mail the neighbor brings from the postoffice. Made of a coil of galvanized spring-steel wire. Get one and try it. By mail, 10c.; two, 15c.; five, 25c.; twelve, 50c. Send for terms to agents. Address **N. E. JOHNSON, MEDINA, O.**

GERMAN CARP FOR SALE.

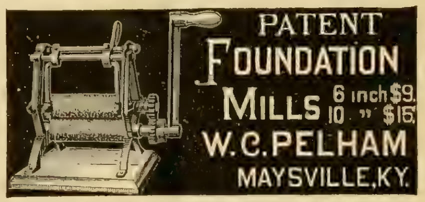
SPAWNERS AND SPRING HATCH.

Correspondence Solicited. Address 17-18d
DR. S. E. ADAMS, Spring Hill Park, Peoria, Ill.

FOR SALE!

350 acres good table land, ½ cleared and in a good state of cultivation; the rest tolerably well timbered; finely situated for stock, fruit, or grain farming; an abundance of fruit and good spring water; good house with 9 rooms, garret and cellar, a large barn, and other necessary buildings. Price $7000.

Also 500 acres adjoining the above, 50 acres cleared, a log house and stable, some fruit, 200 acres of mountain land; the rest nice for farming. Price $3000. Either farm will divide well, and is a good site for an apiary. For particulars address
17-21db H. J. STREBY, Paw Paw, W. Va.



17-15d

FOR CHEAP BEES, see my ad't in July 1 No., p. 526
17d H. M. MOYER, Hill Church, Berks Co., Pa.

BARGAINS IN SMOKERS.

50 new 3-inch King Smokers, latest style, **best materials;** former price, $1.50; will be sold for **only $1.00** each. **Guaranteed perfect.** Send before they are all gone. **A. J. KING,**
17tfdb 51 Barclay St., New York.

Headquarters in the South.

FACTORY OF BEE-HIVES, ETC.

EARLY NUCLEI, ITALIAN QUEENS.

17tfd **P. L. VIALLON, Bayou Goula, La.**

FOR SALE. 60 TWO-STORY SIMplicity hives of mixed bees, complete, for partly comb and extracted honey. Combs built mostly on fdn. in metal-cornered wired frames; honey-house 16 by 24, new, and 10 acres of land. Also one acre of land as building-lot. Price $600. 1719d AUG. LEYVRAZ, Francis, Fla.

DISSOLUTION NOTICE.

Notice is hereby given, that the partnership heretofore existing between E. M. Kennedy and R. B. Leahy, manufacturers of and dealers in apiarian supplies, has been this day, by mutual consent, dissolved, E. M. Kennedy retiring. All liabilities of the firm are payable by R. B. Leahy, and all bills due the firm are payable to R. B. Leahy, who now owns and controls the business.

ELI M. KENNEDY,
R. B. LEAHY.

Higginsville, Mo., Aug. 25, 1886.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

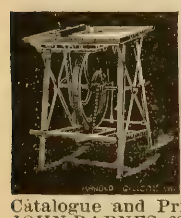
*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Columbia Co., Pa.	1tf
*Paul L. Viallon, Bayou Goula, La.	13tfd
*S. F. Newman, Norwalk, Huron Co., O.	13tfd
*D. G. Edmiston, Adrian, Len. Co., Mich.	11tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala.	13tfd
*E. Kretchmer, Coburg, Mont. Co., Iowa.	11tfd
Ira D. Alderman, Taylor's Bridge, Samp. Co., N.C.	13tfd
*Jos. Byrne, Ward's Creek, East Baton Rouge Par., La.	11tfd
J. W. Winder, Carrollton, Jeff. Par., New Orleans, La.	3tfd
*E. Burke, Vincennes, Knox Co., Ind.	3-1
S. M. Darrah, Chenoa, McLean Co., Ill.	7-17d
S. H. Hutchinson & Son, Claremont, Surry Co., Va.	7-17d
*N. E. Cottrell, Burdick, Porter Co., Ind.	7-17d
C. C. Vaughn, Columbia, Tenn.	15tfd
*J. W. Keeran, S. E. cor. Mason and Mouton St., Bloomington, Ill.	15tfd
D. A. McCord, Oxford, Butler Co., O.	9-19d
J. B. Hains, Bedford, Cuyahoga Co., O.	15tfd
C. P. Bish, Petrolia, Pa.	15-19

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
P. L. Viallon, Bayou Goula, Iberville Par., La.	15tfd
C. W. Costellow, Waterboro, York Co., Me.	1-23
R. B. Leahy, Higginsville, Laf. Co., Mo.	15tfd
E. Kretchmer, Coburg, Montgomery Co., Ia.	15tfd

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says — "We cut with one of your Combined Machines last winter 50 chaff hives with 7 inch cap, 100 honey racks, 500 broad frames, 2,000 honey-boxes and a great deal of other work. This winter we have double the amount of bee hives, etc., to make and we expect to do it all with this Saw. I will do all you say it will." Catalogue and Price List Free. Address W. F. & JOHN BARNES, 68 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

CARNIOLAN
QUEENS & BEES A SPECIALTY.
Send for Descriptive Price List and Circular.
9tfd **H. F. SHANNON, Clarksburg,**
(Formerly of Spring Hill.) **Decatur Co., Ind.**

BEE-HIVES,
One-Piece Sections, Section Cases, Frames &c.,
OF SUPERIOR WORKMANSHIP, FROM
SMITH & GOODELL,
Manufacturers of and Dealers in
APIARIAN SUPPLIES,
ROCK FALLS, WHITESIDE CO., ILL.
3tfd *Send for Price List.*

MY 18TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
10 11tfd *H. H. BROWN, Light Street, Col. Co., Pa.*

FARM OF 57 ACRES,
AND APIARY OF OVER 100 COLONIES
OF BEES FOR SALE.
15tfdb GEO. A. WRIGHT, GLENWOOD, SUSQ. CO., PA.

QUEENS.

I have them, bred from a best selected queen of Root's importation, 90 cts. each; 6 for $4.50. I can give all orders immediate attention, and ship by return mail. Send postal for dozen rates.
10tfdb **B. T. BLEASDALE,**
596 Woodland Ave., Cleveland, Ohio.

FOR SALE. I will sell full swarms of Italian bees during this month for $5.00 each; two for $9.00, or five or more at one order at $4.00 each. They are in new 10 frame L. Simplicity hives, and in good winter shape, ready to ship by return express; good covers and bottom-boards go with the hives. Safe arrival guaranteed. Send money by registered letter.
Address **M. R. NICHOLS,**
15tfdb **Weaver's Corners, Huron Co., O.**

SURE TO SEND FOR MY NEW
PRICE LIST FOR 1886,
Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb
A. B. HOWE, Council Bluffs, Ia.

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

FOR SALE. PURE ITALIAN Bees & Queens.

Untested queen, $1.00; two or more, 75 cts. each. Tested queens, $2.00 each. Full colonies, in Simplicity hive, with tested queen, from $4.00 to $10.00. Three-frame nuclei, with untested queens, $2.00; with tested, $3.00. For July, August, September, and October, address or call on
BENJ. J. COLE,
Residence, Little Muskingum.
16d Marietta, Wash. Co., O.

KIND WORDS FROM OUR CUSTOMERS.

Have received the 500 sections all right. I never saw a *nicer* lot. G. W. CANFORT.
Bloomingburg, N. Y., July 16, 1886.

The goods came in A 1 condition, and please me very much. I can hardly imagine how I got along without the wheelbarrow; while the same scale which you sent costs *here* $2 more.
Verdugo, Cal., June 27, 1886. G. B. WOODBURY.

PLEASING.

Please, sir, would you please to be so kind as to please to send me a *honey-jumble* by mail, if you please? C. C. MILLER.
Marengo, McHenry Co., Ill., June 23, 1886.

OUR REVERSING DEVICE PLEASES.

I now have about 200 pairs of your reversible wires in use, and like them very much. I send order for another 100 pairs. LEWIS P. BILLINGS.
Bloomington, Ill., July 31, 1886.

Thank you for sending journals so promptly, though not prepaid. Your faith in men's honesty must embrace all mankind, and reach right around the world. J. WOOD.
Ohaupo, Auckland, N. Z., May 19, 1886.

The goods came all in good shape. Every thing gives so good satisfaction I can not praise any one thing in preference to the others, unless it be the carpenter's level for 50 cts., which is a thing of beauty indeed for so small a sum of money.
G. E. HUTCHINSON.
Rogersville, Mich., July 29, 1886.

Allow me to thank Ernest for the work he is doing in GLEANINGS, and ask him to continue to tell us about "Our Own Apiary." I believe now that the best bees in the world are pure Italians, and that we shall have to continue to import them from Italy to keep them the best. W. W. WILSON.
Puerta Principe, Cuba, July 9, 1886.

"FOUNDATION JUST BOSS."

The queen came to hand in good shape. I introduced her at once, and she is now laying. The Peet cage is just the thing. That foundation I got of you is just "boss." I am well pleased.
Troy, W. Va., June 26, 1886. PERRY HANSFORD.

HOW THOSE GLASS HONEY-PAILS SUIT.

I am so well pleased with the little honey-pails, that my wife says she must have some more, as they are so nice to use for jelly as well as honey. The last goods received of you came on time, and in excellent shape. GEO. F. BRONDIGE.
Holly, Oakland Co., Mich., July 3, 1886.

THAT IMPORTED QUEEN.

Thanks for your promptness in sending me the imported queen. The order was sent June 24, and the queen was received on the evening of the 26th. I introduced her successfully; and on Monday morning, at the first examination, I found her not in the least bashful, but settled right down to business. I now have cells under way for queens.
Ashley, O., July 1, 1886. ELIAS COLE.

KIND WORDS OF SYMPATHY FROM HAYHURST.

Dear Bro. Root:—GLEANINGS for Aug. 1st is just received. I regret very greatly to learn from it of the trouble in your apiary; it most certainly is a great calamity. I have no doubt, however, that you will soon clean up your yard. Your manly courage in applying the heroic treatment is to be especially admired. E. M. HAYHURST.
Kansas City, Mo., Aug. 2, 1886.

THOSE CHAFF HIVES.

The ten chaff hives that you shipped me July 29th are received, and I have them nailed up and painted one coat, and I can say truthfully that it was as nice a lot of material as I ever had the pleasure of nailing together. I should like to have as many more, but will have to get along with what I have, as my honey-crop was rather short—only about 800 lbs. from 25 hives, spring count; increased to 37. D. J. SPENCER,
Hartford, Ohio, Aug. 9, 1886.

I received the basket of smokers, saws, mandrel, and files, in good order. I am very much pleased with them. The saws run very easily and work nicely. ALMON TOWER.
Lincoln, Neb., June 21, 1886.

THOSE NICE SECTIONS WE MAKE.

Those were the nicest sections you sent me that I ever saw. It puzzles me to know how you cut them so smooth. The Simplicities take the lead as far as I have seen. My bees are doing splendidly this season. I wintered 20 stands in Simplicity hives, outdoors, without the loss of one, which I thought good luck, not good management, for they had it all their own way. W. M. WILSON.
Huron, Kansas.

HOW OUR VEILS ARE GIVING SATISFACTION.

Brussels netting is the best, for the meshes are nearly round, hence are not so injurious to the sight, and it is but very little obstruction to the sight. I have hurt my eyes by using the common veiling. I think you should call special attention to it in one of your editorial notes; and if there is any thing yet still better, let us have it, at almost any price, and I think you would be doing service to the afflicted, and save many from affliction.
E. B. MORGAN.
Cleveland, Lucas Co., Ia., July 8, 1886.

I saw on the wrapper of my last GLEANINGS, that my subscription has expired, and also wished to know whether it gave satisfaction or not; and in reply I can say with a truth that I heartily indorse it, and also the manner you do buisness, so far as I am acquainted with it. I have dealt with you for the past three years, more or less, and in every transaction you gave entire satisfaction. I am one of Delos Staples' subjects to the tune of one dollar, but I don't ask you to pay me for his rascality.
G. W. CRETORS.
Cutler, Carroll Co., Ind., June 28, 1886.

I received my last copy of GLEANINGS last week, with a wrapper as usual, with extra printing on the outside, stating that my subscription expired this month. That is correct. Many thanks for your promptness in thus notifying us; and I must say that I for one have been privileged for one whole year to read a journal so full of interesting and useful instruction, and so free from slang and corruption. I am 43 years old, and this is my third year with bees. I love to work among them.
LEVI HILDEBRAND.
Hancock, Pottawattamie Co., Ia., June 26, 1886.

HOW TO MAKE THE QUEEN LAY DRONE-EGGS.

The queen you sent me came in good shape, and is a good layer; but she would not lay me any drone-eggs, so I put black brood in her hive until she thought (I think) she would have to swarm, and then she commenced laying in drone-cells; then I took the black brood away from her. I keep her colony rather light in numbers, for I do not wish her to swarm. I was pleased with my 15-cent vise. It was just what I wanted.
Mineral Point, Mo., June 28, 1886. O. F. BEAL.

HOW GOOD IT IS.

I received the A B C book all right. It is a beautiful book, inside and out. After I have read and studied it I will say how good it is. I am just a beginner in bee-keeping. When I understand better what I want I shall need many of your implements in bee culture. I started with one colony this last spring. The 1st of June a swarm came out and clustered in two places. We had provided only one extra hive, so we hived the small bunch in a nail-keg and the large bunch in the hive. The queen was with the small bunch. The others went back, and in two days came out again. I rehived them, and they went to work. Then I thought I need not watch for a time. So next day, out came another large swarm. I then resorted to another nail-keg. Too bad, isn't it? I could not get any hives made sooner than now, and they will cost $2.50 each. White clover began to appear in this section three years ago, and now some pastures are white with it.
FLORA K. SMITH.
Griswold, Cass Co., Ia., July 8, 1886.

HONEY COLUMN.

CITY MARKETS.

St. Louis.—*Honey.*—Honey moves remarkably slow. Choice white-clover honey, in sections, 1 ℔., salable at 10c, but holding for 11@12, as to size of lots. Good fair comb, in irregular packages, 8@9c. Extracted, white clover, in tin cans, held at 7c; salable at 5@6. In bbls., slow at 4@4½; kegs 4½@5. Dark strained honey, in bbls., 3@3½, for manufacturing purposes. *Beeswax.*—Selected, 25c. Mixed, as it runs, 22@22½c.

Aug. 23, 1886. Westcott & Hall,
108 and 110 Market Street, St. Louis, Mo.

Chicago.—*Honey.*—Demand for honey continues to be light, even at the low prices prevailing here—12@13c for best grades of one-pound sections. The offerings in houses who never received a case of honey until this season are large; and as they have not an established trade they are cutting prices. Extracted, unchanged.

Aug. 21, 1886. R. A. Burnett,
161 So. Water St., Chicago, Ill.

Kansas City.—*Honey.*—The market is active, and sale of comb is large. Extracted is firm, with no stock in the city. We quote to-day: White clover, 1-℔. sections, 13@14; same in 2 ℔. sections, 11@12; dark, 1-℔. sections, 11@12; same in 2-℔. sections, 8@10; California white sage, 2-℔. sections, 10@11; California dark, 2-℔. sections, 8@9. Extracted, white clover, 7@8; dark, 4½@5½; California white sage, 5½@6; dark, 4½@5. *Beeswax*, 20@22.

Aug. 23, 1886. Clemons, Cloon & Co.,
Cor. 4th and Walnut St's., Kansas City, Mo.

Cleveland.—*Honey.*—The market is unchanged since our last report. Best 1-℔. sections of white sell slowly at 14c; 2-℔s. slow at 12@13. Old honey not wanted at 10@11. Extracted, 6@7. *Beeswax*, 25.

Aug. 21, 1886. A. C. Kendel,
115 Ontario St., Cleveland, Ohio.

Detroit.—*Honey.*—The market for comb honey is very good, and a good many sales have been made. Best white in 1-℔. sections, 14c. *Beeswax*, firm at 23c. M. H. Hunt,
Aug. 23, 1886. Bell Branch, Mich.

Boston.—*Honey.*—We have had a small lot of new honey, and it sold from 14@16c, with good demand.
Aug. 23, 1886. Blake & Ripley,
57 Chatham St., Boston, Mass.

For Sale.—3000 lbs. superior white-clover and basswood honey in 1-lb. sections, delivered aboard cars at Dixon, for 12c in 24 or 48 lb. crates. 17-18
W. H. Swigart, Dixon, Ill.

For Sale.—3000 lbs. extracted honey, in 10-gallon kegs; 115 lbs. net; 7c for white clover; 6½ cents for raspberry. M. Isbell, Norwich, N. Y.

For Sale.—5000 lbs. of choice white honey—½ each of comb and extracted. The comb is in 4¼×4¼-inch sections, incased in neat crates (which are new) with two glass sides—14 sections to the crate. Price 14c per lb. Extracted is A No. 1, put up in new 10 and 17 gallon pine kegs. Above is all in first-class condition in every respect, and ready to ship on receipt of orders. O. H. Townsend,
Alamo, Kal. Co., Mich.

For Sale.—1000 lbs. white-clover honey, in 1-lb. sections, put on board cars here in nice glassed shipping-cases, for 15c per lb.; or if crates are returned free, 14c per lb. Herbert G. Green,
Emerson, Mills Co., Iowa.

For Sale.—500 lbs. white-clover honey in 1-lb. sections, 48 secs. in a case, delivered on board cars here for 15c per lb., cases to be returned.
Geo. P. Kime, Evansburgh, Coshocton Co., Ohio.

Wanted.—About 200 lbs. of white-clover comb honey, and 500 lbs. of white-clover extracted honey; comb honey to be in single-tier crates holding 25 4¼ sections, and weighing not less than 24 lbs. net. Extracted, in double cans crated in box, such as Root sells. Send samples and state lowest cash price. G. Wiederhold, Yonkers, N. Y.

For Sale.—California white-sage honey, 12000 lbs.; amber-colored, 2000 lbs. Sample on application. What am I offered on board cars at Los Angeles?
Geo. B. Woodberry, Verdugo, Cal.

For Sale.—1500 lbs. comb honey in 1½-lb. sec.; 1200 lbs. white clover at 12c.; and 300 dark at 10c., laid down here. John Crombie, Columbus, Wis.

For Sale.—I have about 800 lbs. of extracted honey, clover, put up in tin cans of 64 lbs. each. I will take 8c per lb., can included, delivered on board cars at La Grange. B. B. Wesley,
La Grange, Lorain Co., Ohio.

For Sale.—About 1200 lbs. of very choice white-clover honey, delivered on board cars at 13c per lb.; crates holding 36 sections each, all 1-lb. sections; crates thrown in. A. F. Unterkircher,
Manchester, Mich.

For Sale.—4500 lbs. choice white comb honey in 4¼×4¼ sections in new, bright, 24-lb. shipping-cases, glass fronts; 12c per lb., delivered at depot at Charles City, Iowa. C. A. Sayre,
Sargent, Floyd Co., Iowa.

For Sale.—3000 lbs. choice white comb honey in fancy crates at 11c; also 7000 lbs. extracted clover and basswood, very thick, in tin cans of 175 lbs. each, at 7c; placed on cars in any quantity on receipt of price. Oliver Foster, Mt. Vernon, Ia.

Wanted.—Extracted basswood honey.
J. G. Lehde, Gardenville, Erie Co., N. Y.

Wanted.—I will pay 13c per lb. for 100 lbs. of nice comb honey in 1-lb. sections, put up in 24-lb. shipping-cases, delivered at Ridgefield, Conn.
W. S. Gilbert, Ridgefield, Conn.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Black and hybrid queens for sale now. Can ship upon receipt of order, and will guarantee safe arrival. Prices, black, 20 cts.; hybrid, 35 cts.
16-17-18 J. A. Bucklew, Clarks, Coshocton Co., O.

For sale, after Sept. 1, about a dozen black queens at 20c each, postpaid, some of which have mated with Italian drones. The above will be disposed of before the middle of the month.
R. Kilbourne, Jr., Clinton, Oneida Co., N. Y.

Six hybrids, at 25 cts. each; three are clipped.
C. G. Fenn, Washington, Conn.

I have a few mismated Italian queens to dispose of at 35 cts. each, or 3 for $1.00. These queens are almost pure. Geo. W. Beckham,
Pleasant Hill, Lan. Co., S. C.

I have 6 hybrid queens for sale at the usual prices. Geo. D. Raudenbush,
445 Chestnut St., Reading, Pa.

I have 15 black queens for sale at 20 cts. each.
R. B. Bonear, Cherry Ridge, Wayne Co., Pa.

I shall have some 12 or 15 hybrid and black queens on hand during August that I will take 30 cts. each for, or 2 for 50 cts.; or if there is any one not really able to give that, and wants one, send me a cage with stamp and your address, and I will *give* you one; or I will give one as a premium to those who never took Gleanings who will send A. I. Root a dollar for Gleanings for one year. These offers are good as long as I have any queens on hand, for they must be disposed of.
C. M. Hicks, Fairview, Md.

WE have for sale 6 very good tested Italian queens (1 hybrid) at $1.00 each, or $6.00 for the 7. Hybrids, 35c. Send $1.02 to return your money if queens are sold before your order comes.
17tfdb MODEL B. HIVE CO., W. Phil'a, Pa.

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CONVENTION NOTICES.

THE NORTH-AMERICAN BEE-KEEPERS' SOCIETY.

The society will hold its 17th annual convention, Oct. 12, 13, and 14, 1886, at Indianapolis, Ind.

The meeting will be held in Pfafflin's Music Hall, 82 and 84 North Pennsylvania St., one of the most pleasantly situated halls in the city. Good ventilation, and plenty of light.

The society headquarters will be at the Occidental Hotel, corner of Washington and Illinois Sts., in the heart of the city, and but a short distance from the hall. The regular rates at this hotel are $3.00 per day. Special rates for those in attendance at the convention will be $1.50 per day.

The North-Western Bee-Keepers' Society, The Indiana State, The Eastern Indiana, with various county and joint societies, will meet in union with the N. A., making it one of the most formidable meetings of bee-keepers ever held in this country. Every thing possible will be done to make the meeting pleasant and entertaining. A cordial invitation is extented to all.

The following is the programme:

FIRST DAY—TUESDAY.

Forenoon session, 10 A. M.—Convention called to order. Address of welcome by Gov. I. P. Gray. Response by the president, H. D. Cutting. Welcome to the city mayor, Caleb S. Denny. Thanks, Dr. C. C. Miller, president of the N. W. Society. Calling the roll of members of last year. Payment of annual dues. Reception of new members and distribution of badges, reports of secretary and treasurer. Announcements.

Afternoon session, 2 P. M., special business.—Annual address of the president; Bee Studies, by Prof. A. J. Cook, Agricultural College, Michigan; Apicultural Journalism, by John Aspinwall, Barrytown, N. Y.; Bee Literature, by Thomes G. Newman, Chicago, Ill.; The coming bee, what encouragement have we to work for her advent? by R. L. Taylor, Lapeer, Mich. Subject for discussion, Has Apis Americana been reached?

Evening session, 7:30 P. M.—Announcements. Miscellaneous business. Discussion of questions that may have accumulated during the day.

SECOND DAY—WEDNESDAY.

Morning session, 9 A. M.—Announcements. Communication. Call of N. W. Society to elect officers. Election of officers of Indiana State Society. Call to order, Rendering Comb into Beeswax, by C. P. Dadant, Hamilton, Ill.; Foul Brood, by A. J. King, New York. Selection of place for holding meeting in 1887. Election of officers.

Afternoon Session, 2 P. M.—Announcements. Miscellaneous business; Bee-keeping and Apiculture, by Prof. N. W. McLain, U. S. Apicultural Station, Aurora; Feeding Bees for Winter, by Jas. McNeill, Hudson, N. Y.; Wintering, by Dr. A. B. Mason, Wagon Works, Ohio; Subjects for discussion, Is the use of foundation necessary in modern bee culture? Are perforated honey-boares a success? Unassigned papers.

Evening session, 7:30 P. M.—Announcements. Miscellaneous business. Discussion of questions in question-box. Social communications.

THIRD DAY—THURSDAY.

Morning session, 9 A. M.—Announcements. Miscellaneous business. Communications. A Talk on Hives, by James Heddon, Dowagiac, Mich.; Reversible Hives and Frames, by J. E. Pond, Jr., North Attleboro, Mass.; Drones and Drone Comb, by W. Z. Hutchinson, Rogersville, Mich.; Reports of vice-presidents; Progress of Bee-keeping in Indiana, by Jonas Scholl, Lyons Station, Ind.

Afternoon session, 2 P. M.—Announcements. Miscellaneous business. Explanation of various articles on exhibition.

Many good things are yet to be added to the programme not sufficiently developed to give. **FRANK L. DOUGHERTY.**

The 4th annual meeting of the Progressive Bee-Keepers' Association will be held in the Town Hall at Bainbridge Center, O., on Thursday, Oct. 7, 1886. Parties wishing conveyance from Geauga-Lake Station, 3 miles distant, on the N. Y., P. & O. R. R., will please notify me so that arrangements can be made for the same. All interested are invited to come and bring their lunch-basket. **MISS DEMA BENNETT, Sec**
Bedford, Cuyahoga Co., O.

The Sheboygan Co. Bee-Keepers' Association will hold its next meeting at Chandler's Hall, at the village of Sheboygan Falls, on Saturday, Oct. 16, at 10 A. M. **MRS. H. HILLS.**
Sheboygan Falls, Wis.

The Southern Ill. Bee-Keepers' Association will hold its next meeting at Benton, Franklin Co., Ill., Thursday, Oct. 21, 1886, at 10 A. M. **F. H. KENNEDY, Sec.**

The annual meeting of the Western Bee-keepers' Association will be held in Pythian Hall, corner of Main and 11th Streets, Kansas City, Mo., Oct. 27, 28, 29, 1886. **P. BALDWIN, Sec.**

The Illinois Central Bee-keepers' Association will hold its next meeting at Mt. Sterling, Ill., on Tuesday and Wednesday, Oct. 19 and 20. **J. M. HAMBAUGH, Sec.**

KIND WORDS FROM OUR CUSTOMERS.

I am glad to inform you that the tested Italian queens bought of you in July last have proved to be all that I could have expected. I have produced very fine three-banded workers.
Emmettsville, Ind. **JACOB CAYLOR.**

The untested queen received from you some time since proves to be a fine one, and very fertile. She produces fine 3-banded workers. The season is very poor in this section. Basswood has failed entirely. Clover yield was not large. Buckwheat promises well, but is not fully out yet. **R. G. KLING.**
Charleston Four Corners, N. Y.

HOW TO PUT ON THE ROUND LABELS.

The goods came to hand. Those round labels No. 17 are beauties, and the place to stick them is on the inside of the glass (I use them for comb honey), just so they will be in the center of the section. They make very nice combinations and they will never get soiled, and the commission men can't get them off nor scratch off the address. **H. W. FUNK.**
Bloomington, Ill., Sept. 4, 1886.

The imported queen you sent to replace the missing one arrived safely, and is now laying in a new colony. We are well pleased with her appearance, and she seems to be especially prolific. And we are also much pleased with the way you settled the matter in regard to the loss of the first queen. We can not say that we expected you to replace her at your own entire expense, but felt willing to leave the matter entirely in your hands, feeling satisfied that you would do the fair thing in the matter.
Pomeroy, O. **S. A. DYKE & CO.**

I can not send off my order without expressing briefly my gratitude for such a blessing as GLEANINGS is to us. Each year I have taken it contains at least 24 happy days—the days on which GLEANINGS comes; and whenever I write to distant friends I tell them of its merits. I have kept bees now just nine years, and I am quite sure that no one ever cared more for their bees than I do. I am ever so sorry to know that you have foul brood in your apiary; but I like the method you have taken for a cure—the furnace idea. **W. S. POUDER.**
Groesbeck, Ham. Co., O., Sept. 2, 1886.

ITALIAN QUEENS, tested, $1.00; hybrid, 3 for $1.00. N. ADAMS,
18-19-20d Sorrento, Orange Co., Florida.

FOR SALE CHEAP.

For $4.50 each I will sell 60 colonies of bees in splendie hives and in fine condition. I am compelled to move soon, and must sell a part of my fine apiary. For particulars, address
18d M. J. HARRIS, Clay City, Clay Co., Ill.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

Foundation-Mill For Sale.

One ten-inch Root comb-mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $15.00. The list price of a new mill of this kind is $20.00. **A. I. ROOT, Medina, O.**

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

GOOD NEWS FOR DIXIE!

SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

PREPARE FOR WINTER.

We have unequaled facilities for manufacturing the Root chaff hive at a great reduction from ruling prices. Mr. Zeno Doty, Grafton, Neb., writes July 9th, "Your material, make, and price is far better than I can get anywhere else." Send for price list and special prices for this fall. 16tfdb

A. F. STAUFFER & CO., Sterling, Ills.

GERMAN CARP FOR SALE.

SPAWNERS AND SPRING HATCH.

Correspondence Solicited. Address 17-18d
DR. S. E. ADAMS, Spring Hill Park, Peoria, Ill.

2 H. P. ENGINE FOR SALE.

We have at the factory in Elmira, N. Y., a 2 H. P. engine and boiler that has been rigged up exactly as good as new in every respect. It ought to bring full price of a new one, but in order to get it off our hands we offer it for $150.00.

A. I. ROOT, Medina, O.

DISSOLUTION NOTICE.

Notice is hereby given, that the partnership heretofore existing between E. M. Kennedy and R. B. Leahy, manufacturers of and dealers in apiarian supplies, has been this day, by mutual consent, dissolved, E. M. Kennedy retiring. All liabilities of the firm are payable by R. B. Leahy, and all bills due the firm are payable to R. B. Leahy, who now owns and controls the business.

ELI M. KENNEDY.
R. B. LEAHY.

Higginsville, Mo., Aug. 25, 1886.

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4-3db

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

100 FINE PRINTED ENVELOPES,

white, or assorted colors, with name, business, and address on, all for 40 c.; 50 for 25 cts. By mail postpaid. Cards and letter-heads at same prices.
17-22db Address G. F. ROBB, Gilman, Iowa.

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

SURE TO SEND

FOR MY NEW

PRICE LIST FOR 1886,

Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb

A. B. HOWE, Council Bluffs, Ia.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

FOR SALE. PURE ITALIAN Bees & Queens.

Untested queen, $1.00; two or more, 75 cts. each. Tested queens, $2.00 each. Full colonies, in Simplicity hive, with tested queen, from $4.00 to $10.00. Three-frame nuclei, with untested queens, $2.00; with tested, $3.00. For July, August, September, and October, address or call on

BENJ. J. COLE,
Residence, Little Muskingum.
16-20db Marietta, Wash. Co., O.

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary, **SUPPLIES**

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,

2tfd **Hartford, Washington Co., Wis.**

WARRANTED Italian queens at 60 cents each. They are young, and are now ready to ship.
J. H. JOHNSON, Middaghs, Northamp. Co., Pa.

GOODS NEAR YOUR HOME, AT A REDUCTION FROM REGULAR PRICE.

We have the following lot of goods at the places named, for which we want customers. Now, it is altogether likely that there is some one located not very far from where these goods are who will be needing just such articles, especially if he can get them a little lower than the regular price, and doesn't have to pay much freight charges on them. In hopes that there are such persons, we append a list of the articles for sale, giving the present value of the goods and the amount we will take for each lot entire. We give a number to each lot, and the name of the place where they are being held, subject to our order. Remember they are all perfect goods, just as fresh and new as if shipped from here. Remember, also, that at the price we offer them we can not break lots; each lot must go entire. In making your orders, please give the number of the lot as well as the articles contained in it, and thus help us to avoid mistakes.

No. 1. Aplington, Iowa.
Ten 2-story portico hives, complete, in flat, for comb honey, including m. c. frames, wide frames, sections, separators, thin fdn. for sec., 7 lbs. brood fdn., and enamel sheets. The lot foots up to $25 30. We will sell it complete for.................................$22.00

No. 2. Union City, Ind.
13 combined shipping and honey crates flat; 90 tin separators for above crates; 26 pieces glass for above crates; 40 metal-cornered brood-frames in flat. Present value, $4.50; will sell for.............. 4.00

No. 5. St. Paul, Mo.
22 48-lb. shipping and retailing cases, in flat, without glass. Worth $3.96; will sell at.......... .. 3.75

No. 7. Nassau, N. Y.
200 wide frames, for 8 1-lb. sections, in flat. Worth $4.00; will sell for...... .... 3.75

No. 8. Riverside, N. J.
500 1-lb. 7-to-foot sections. Worth $2 00; will sell for .. 1 75

No. 9. North Walton, N. Y.
100 metal-cornered frames, in flat. Present value, $2.50; will sell for...... .... 2 50

No. 12. Caribou, Maine.
900 sections, 4½ x 5 x 1 7/16 wide, open on all four sides. Present value, $4.50; will sell for........... .. 3.50

No. 13. Canal Fulton, Ohio.
Eight chaff hives, complete, for comb honey, in the flat. Present value $21.00; will sell for.............. 2.20

No. 14. Delaware, Ohio.
35 bottom-boards for Simp. hives; 210 tin separators for combined crates. Present value, $8 75; will sell for.............. .... 7.50

No. 15. Foster Brook, Pa.
100 wired m. c. brood-frames, in flat, including wire and tin bars. Present value, $3. 00; will sell for...... 2.75

No. 16. Johnson City, Tenn.
One No. 7 honey-extractor, with basket, only 15 in. deep. Present price, $8.00; will sell for.............. 6.00

No. 17. Cairo, W. Va.
One 2 story Simp. hive, rigged complete for comb honey, and 5 lbs. fdn., ½ thin, for sections, and ½ for L. frames. Present value, $5.25; will sell for..... 4.75

No. 18. Elmira, N. Y.
One 2-H. P. engine and boiler complete. This has been used some, but has been put in as good shape as when new. Price of a new one, $175.00; will sell this for..$150 00

No. 19. La Salle, Ill.
6-in. foundation mill. Present value $13.50; will sell for.. 11.50

No. 20. Glenville, Conn.
15 24-lb. single-tier shipping-cases in the flat, with 30 pieces of glass for same. Present value $2.60; will sell the same for.................................. 2.25

A. I. ROOT, Medina, Ohio.

HELP! HELP! HELP!

Me develop my honey-trade in Philadelphia by consigning me your honey. Those I have sold for, express satisfaction.

TODD'S HONEY CANDIES

Sample package mailed on receipt of 25 cts. Special rates for quantities for fairs.
1618db **ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.**

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

---

RED-CLOVER ITALIANS.

During the season just passed, Moore's Italians have roared away on red clover, in countless thousands. Reduced prices: Warranted queens, each, 80 cts.; per ½ doz., $4 50. Tested queens, $1.25. Safe arrival and satisfaction guaranteed. Circular free. 15tfdb **J. P. MOORE, MORGAN, PENDLETON CO., KY.**

THE AMERICAN APICULTURIST

Sent one year, and a tested Italian queen, to each subscriber; all for $1.50. Sample copies free.
15tfdb Address HENRY ALLEY, Wenham, Mass.

PURE ITALIAN QUEENS.

Tested queens, $1.50 each; untested, 70c each; 3 for $2 00; 5 for $3.00. All bred from a select imported mother. By return mail.
15tfdb **D. G. EDMISTON, ADRIAN, LEN. CO., MICH**

ATTENTION, BEE-KEEPERS!

Now is the time to Italianize cheap. Having all my orders filled to-date, I will sell fine queens, from my well known strains, at the following very low rates.

1 queen, - - -	$ .80	1 tested queen, - -	$1.50
6 " - - -	4.50	6 " " - - -	8.00
12 " - - -	8.00	1 select tested queen,	2 00

Safe arrival of all queens guaranteed, and queens sent by return mail. Address
16tfdb **WM. W. CARY, COLERAINE, MASS.**

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

CHEAP!

Full colonies in Simplicity hives, and honey enough to winter, for only $4.50. *Will ship last of July.*
DAN WHITE,
11tfdb NEW LONDON, HURON CO., OHIO.

HOW TO RAISE COMB HONEY.

Price 5c. You need this pamphlet, and my free bee and supply circular. 18tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

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WE have for sale 6 very good tested Italian queens (1 hybrid) at $1.00 each, or $6.00 for the 7. Hybrids, 35c. Send $1.02 to return your money if queens are sold before your order comes.
7tfdb MODEL B. HIVE CO., W. Phil'a, Pa.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—The season for the new crop of comb honey is just opening. We note an improvement in sales and prices. Most of the comb which we have seen is badly colored, which makes it second grade, which we suppose is due to a poor season and long finishing. We quote 1886 crop as follows:

Fancy white 1-lb. sect's, clean and neat p'k'gs.	15@16
“ “ 2 “ “ “ “ “ “	12@13
Fair to good 1 “ “ “ - - - - -	12@14
“ “ “ 2 “ “ “ - - - -	10@11
Fancy Buckwheat 1-lb. sections, clean - -	11@12
“ “ 2 “ “ “ - -	9@10
White Clover, extracted, kegs and small bbls.,	6½@7
California extracted, 60-lb. cans, per pound,	5@5½
California Comb - - - - - - -	10@11
Beeswax, prime yellow - - - - - -	22@24

McCAUL & HILDRETH BROS.,
Sept. 2, 1886. 34 Hudson St., Cor. Duane St.

CINCINNATI.—*Honey.*—The market for honey is very tame. Demand from manufacturers is slow, and there is only a fair trade in new comb honey, and extracted honey in square glass jars. Extracted honey brings 3½@7c. per lb. on arrival. Comb honey brings 12@14 for good to choice in the jobbing way. Prices are low for all produce, and no speculative feeling is noticed anywhere. Unless better prices are realized for other produce, prices of honey are not likely to advance. *Beeswax* is in good demand, and arrivals are fair. We pay 20c. per lb. for good yellow. CHAS. F. MUTH & SON,
Sept. 2, 1886. S. E. cor. Freeman and Central ave.

KANSAS CITY.—*Honey.*—Extracted is arriving more freely. Extracted white clover, 6½ @ 7½. Other grades the same.
Sept. 10, 1886. CLEMONS, CLOON & CO.,
Cor. 4th and Walnut St's, Kansas City, Mo.

DETROIT.—*Honey.*—No change in the honey market since last quotations. There is sufficient in the commission houses to supply the demand. Best white in 1-pound sections, 14 cts. *Beeswax*, 23 cts.
M. H. HUNT, Bell Branch, Mich.
Sept. 10, 1886.

BOSTON.—*Honey.*—New honey is coming in, and selling fairly well, but the recent hot wave has checked it some. We have heard from most of the bee-keepers of Addison Co., Vt., and there will not be over half a crop there. We are selling one-pound white honey at 14@15c.; two pounds, 13@14.
Sept. 10, 1886. BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

CHICAGO.—*Honey.*—Honey is without change from last quotations. Weather continues warm.
Sept. 10, 1886. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—Market remains about the same as when last reported; may be quoted little lower to sell.

Choice white comb, 1-pound sections - -	12@13
“ “ “ 2 “ “ - -	11@12
Extracted white, in kegs - - - - - -	6@6½
“ “ “ tin - - - - - -	6½@7
“ dark “ barrels - - - - -	5@5½

Beeswax, no demand. A. V. BISHOP,
Sept. 10, 1886. 142 W. Water St.

ST. LOUIS.—*Honey.*—Comb honey is in good demand for choice white-clover in sections, 1-lb., 12@12½; other varieties, 10@11½. Extracted honey very dull; cans, 5@7 for choice in a small way. On large lots, 5@5½ are as much as would bring. Old honey in cans 4@5c. Southern honey in bbls., good to choice, 3½@4; extra, 4½c. *Beeswax*, mixed lots, 22c.; selected yellow, 25c. WESTCOTT & HALL,
Sept. 10, 1886. 108 and 110 Market Street.

CHEAP HONEY.—I have about 350 lbs. of honey in nice 22-gallon kegs. It is dark, but very thick, and is splendid bee-feed, or good for factory-men. I have to move soon, and must sell it. You may have it for 3 cts. per pound, by the keg of 250 lbs., at depot here. M. J. HARRIS,
Clay City, Clay Co., Ill.

FOR SALE.—7000 lbs. extracted honey of the best quality, part pure white clover, part white clover slightly mixed with basswood, put up in new oak paraffined barrels holding about 500 lbs., at 7c. per pound, delivered on cars here, packages free.
RUFUS PORTER, Lewistown, Ill.

WANTED.—I want 100 lbs. of white extracted honey. What will you charge me for it, laid down at my depot at Rogersville, Mo.? I may want more.
S. S. LAWING, Henderson, Mo.

Ten bbls. of nice thick honey, 52 gallons each, for $35.00 per bbl., delivered on board boat at Gaines' Landing, Ark. Sample sent free on application.
W. G. McLENDON, Gaines' Landing, Ark.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—To exchange for comb or extracted honey, cash or offers, 15,000 pot-grown strawberry plants of the best varieties; also game cocks. Can give best reference. GEO. M. WERTZ,
15tfdb Johnstown, Cambria Co., Pa.

FOR SALE.—A two-story brick house, with five lots, good barn, ice-house with cooling-room, bee-house, honey-house, wood-house, etc. Grapes, berries, apples, and cherries on the place; in small town, location suitable for bee or chicken business. Will sell cheap for cash, or exchange.
15-18db ANABEL RONALD, Grand View, Iowa.

WANTED.—To buy a farm and apiary. Give honey resources, and distance to school, church, and R. R. station. Address E. S. ARWINE,
17-18d Patterson, Waller Co., Tex.

WANTED.—To exchange 10,000 Cuthbert raspberry roots, for beeswax, or L. foundation.
17-19db M. ISBELL, Norwich, Chenango Co., N.Y.

WANTED.—To sell, or exchange for a small farm, my village home, consisting of 2 lots, a 2-story frame dwelling, a 2 story frame wagon-shop; also 46 colonies of bees. For particulars address
17tfdb M. LUDTMAN, Hannibal, Monroe Co., Ohio.

WANTED.—Beeswax. Any amount of average beeswax, at 22 cts., cash on delivery.
E. T. LEWIS & CO., Toledo, O.
17tfdb Apiarian Supply Dealers.

ITALIAN QUEENS.—Select tested, $1.00; second grade, 90c; third grade, 80c; untested and unwarranted, 60c, or $6.00 per dozen. 17-18-19d
DR. JOHN M. PRICE, Tampa, Hillsboro Co., Fla.

WANTED.—To sell one Pacific incubator and brooder, capacity 200; has been used once only, and is good as new; cost $65.00. Will sell cheap, or exchange in part for Detective camera. Make me an offer. L. HEINE,
18d Bellmore, Queens Co., N. Y.

WILL sell for $25.00 cash a Zimmerman dryer and baker, used one season. Cost $50.00; or exchange for good section comb honey or offers; also fine-bred poultry and ducks to sell or exchange.
J. T. FLETCHER, Prop.,
18d Model Poultry & Bee Yards, Clarion, Pa.

WANTED.—To exchange music-box and opera-glass for Italian bees. THOS. DREW,
Box 69, South Hanover, Mass.

THOROUGHBRED fowls, Brown Leghorns, S. S. Hamburgs, W. C. B. Polish, P. Rocks and Wyandottes, Bonney's, Forbes', Hawkins', Wilcox & Fultz' strains. We will sell for cash, or exchange for fdn. and beeswax. Price list free.
18-19tfd A. H. DUFF, Creighton, Ohio.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XIV. SEPT. 15, 1886. No. 18.

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A FEW VALUABLE SUGGESTIONS FROM J. A. GREEN.

SOLAR WAX-EXTRACTORS.

IN the extractor I sent you, I left off one important feature in order to make an extractor more easily shipped and less easily broken. This was the "side reflector." This is an important adjunct, and this season's use has convinced me that I would not want to do without it.

To make it, take a thin board, or combination of boards about four inches shorter, and an inch narrower (or vice versa), than the inside of the cover. Cover one side with tin, and on the other side put a cleat in the middle, or one at each end, projecting three inches on one side. Now nail a "pocket," or small box, on each side of the extractor, blocking it away from the side so that the sash can be raised without interfering with the reflector. The reflector is to be placed on the west side in the morning, and changed over to the east side at noon. At night it is laid on the sash, and the cover closed down over it.

Of course, this side reflector is not of much use if the extractor is kept facing the sun all the time; but a busy man can not well do this.

In making beeswax in times past, I have been much troubled with "spongy beeswax," a sort of combination of wax and water that would sometimes be two or three inches thick on the bottom of cakes of wax. It seemed to be caused by boiling, or, at least, too much heating, in combination with water. Sometimes the wax would be granular, as I believe you have mentioned. In both these cases the wax seemed good enough, only it appeared to have got tired of assuming the old forms. I find that I can make such wax "behave" by running it through the solar extractor. I have also succeeded in getting a considerable quantity of good wax from the scrapings of wax cakes that I had formerly supposed entirely worthless. "Keep it before the people," that the solar wax-extractor affords the best and most convenient way of making beeswax yet invented.

Speaking of extractors reminds me that I have never made any report on the rim you sent me for the top of my honey-extractor. I have just been extracting some very thick honey, which has afforded a good test for it. It does not entirely prevent the flying over the top of the can when the honey is very thick or not very warm; but under ordinary circumstances it does away entirely with this very annoying feature.

SMOKER FUEL.

I have used planer shavings in the Clark smoker very successfully. In the spring, and fall too, I have used with great satisfaction a fuel that I have never seen mentioned by any one else. This consists of the dry leaves of the soft maple. These are very soft and fine, and I use them largely for packing hives. Being always handy, it is very convenient to use them as fuel. With a little care they answer the purpose excellently, and last much longer than one would suppose who had never used them. To keep such light fuel from going out in the Clark smoker, it is necessary to use an admixture of something more solid. When using leaves, I start the fire with rotten wood and then use alternate fillings of leaves and wood. When using shavings in the Clark smoker I mix them half and half with good rotten wood. This mixture burns well, and holds fire well, although it does not do as well as the shavings alone in the "Doctor." W. Z. Hutchinson, in telling how to light the smoker, just misses a convenience which I would not think of doing without. This is the use of kerosene in kindling the fire in smokers. Have a zinc oiler full of kerosene, handy to the place where you light your smoker, and squirt a little of it on that handful of shavings; light your match, drop it in—no need to "carefully set it on end"—and puff away. If you have no oil-can, use a small bottle with a quill through the cork. A very little oil is enough.

Mr. Heddon tells us to use wet shavings as a spark-arrester. Instead of these I prefer to use a handful of stiff wiry grass or weeds—not too coarse nor too succulent, coiled in the cap of the smoker. Knot-grass is best. This coil of weeds completely prevents the throwing of sparks, and you can tell by the smell when your smoker needs filling. I used to try to get along with as little smoke as possible. Now, I want a smoker that will throw smoke enough in two or three puffs to take the fight out of the worst hybrids. If the bees are willing to be handled without smoke, all right; but if they show fight I make them behave, and waste no time about it. A good smoker is one of the best time-savers a bee-keeper can use, to say nothing of the extra comfort over a poor one.

Dayton, Ill., Sept. 10, 1886. J. A. GREEN.

Thanks, friend Green, for the improvement you suggest for the solar wax-extractors. We have found the granulated wax a very serious trouble, and we have never succeeded in doing any thing with it except by mixing it with a considerable quantity of good wax, and stirring it until it behaves itself, as you express it. If the solar wax-extractor will restore it, it is indeed a great fact.—No doubt your suggestion of dry leaves for fuel for smokers is a good one: but, my dear sir, the idea of filling a small oil-can with kerosene, for kindling fires of any kind, it seems to me, is something of wonderful value. Why, you can give the hired girl, or the cook, even if the latter be fresh from foreign shores, such an arrangement to light her fires with, and she *can't* do any harm. Why has no one ever thought of it before? Our five or ten cent oilers will do it exactly. On some accounts I should prefer the five-cent one, because the quantity of oil would not be sufficient to set any thing afire, if left on the stove, or dropped into the stove. Your idea of stiff wiry grass for a spark-arrester is also a valuable suggestion. See Our Own Apiary, this issue.

INTRODUCING QUEENS.

A DRONE-TRAP NEARLY EQUAL TO ALLEY'S.

I HAVE had quite a time introducing queens. I have introduced four the past month. One of these the colony rejected five times. I then formed a nucleus of young bees, and they took her without a moment's parleying. Another one was refused by another colony four times, whereupon I introduced her to the colony that had so cordially rejected the first-mentioned queen, and all was as peaceful as a summer morning, and I was relieved, for she was a fine one. The instructions for introducing accompanying Peet's cage would be quite incomplete were it not for your added note. Had I not followed it I should have lost, no doubt; for at the expiration of 2 days I found her balled, and a more persistent cluster I never had to dissolve. I deluged them with tobacco smoke, and finally had to rake them apart with a twig, and then they seemed loth to yield. I have found Alley's plan as successful as any. The queen to be superseded is removed from the colony; when the bees are back and quieted, the cage containing the new queen is placed on the combs under the mat, in such away that the bees may have access to the food. Then a small amount of tobacco is blown into the hive, thus scenting the bees and queen alike. In the course of two hours he says (though not in a single instance have mine been liberated under 24, and I used his prepared cage), the queen is released; and as the colony has not had time to miss their old queen, the new one is successfully introduced. I would add, that where there is delay in her release, as has been true in my case, an hour or two before she emerges I would fumigate them again, as the first smoking will have entirely lost its virtue. Of course, a portion of the food could be removed, and a more speedy release effected. Last year all my queens were purely mated. This year there is a new comer, a few blocks away, who keeps blacks, and in almost every case this year the queens have been impurely mated. He has but a few colonies, and I purpose queening them for him with pure Italians. I think this would obviate the difficulty.

And now about my drone-trap. It is hardly equal to Alley's, but good, nevertheless. It is in the shape of a brood of quarter-grown Leghorns. I noticed they frequented the bee-yard, and my suspicion was aroused, so I watched them. I was soon struck with dismay at seeing them pluck up bee after bee with a dexterity that was surprising. I disliked to dispose of them, for they were fine ones, well marked. The thought struck me, "Perhaps they are taking only the drones," for I noticed they received no stings, and, sure enough, after long and close watching I found they did not molest, or even notice the workers; so in place of a pest I had a prize. How remarkable! and none but the Leghorns would be up to it. It seemed strange that they had learned so readily to distinguish between the "lancers" and the civilians; and now a question: Can a chicken swallow worker-bees without imperiling its life? I have heard that they do; but is such a thing positively known?

GLEANINGS grows in favor with me. It is second to none. FRANK C. BLOUNT.

Lawndale, Ill., Aug. 19, 1886.

Friend B., if I am not mistaken, common fowls may learn to catch and kill worker-bees; at least, such facts have been furnished, supposing they were worker-bees. As many of the feathered tribes catch and kill worker-bees when the bees are gorged with honey, why may not common fowls? My idea has been, that the fowls mash the bees with their bills until the bees are unable to sting. Of course, it requires pretty thorough mashing to prevent the sting from working of itself, after the bee is dead. If, however, it should be proven that it is only *drones* they take, we can well afford to encourage fowls about the apiary.

FOUL BROOD.

SOME BOLD SUGGESTIONS IN REGARD TO ITS CAUSE AND CURE.

MR. EDITOR:—You so frequently receive communications suggesting such wild ideas and new ideas—which are not new—that it is very probable you will regard what I have to say as simply an addition to the wild ideas before mentioned. This subject, foul brood, is, without a doubt, the greatest bugaboo to the bee-keeping fraternity; but when bee-keepers become thoroughly aware of its nature, and the causes which bring it on, then will it dwindle into insignificance, and will be of less importance to the bee-keeper than the marketing of his honey.

Last year I had the disease among my bees in its very worst form. I could smell the odor given off by the hives, thirty yards from the apiary. I tried both phenol and the starvation method of cure; but it seemed the more I did for them, the worse they got. I tried the phenol cure until I had used 2 lbs. with a very discouraging result. I tried the starvation plan on thirty, but did not cure any—except two that I starved to death.

While I was trying to cure some by the remedies above mentioned, a period of about ten weeks, I not only kept a record of those which I tried to cure, but of those that I did nothing for. Any one who has read a great deal on the subject can judge of my perplexity when I discovered that the colonies affected that I did nothing for were in a better condition than those I doctored. Since I made the discovery above mentioned, I have had a new idea as to the nature of the disease. This idea has been so confirmed by what I have read, and by later experience, that I am now confident I can state some new and valuable facts on the subject.

Foul brood is caused, chiefly, by an inferior quality of honey or honey-dew; but it is sometimes caused by physical defects in the queen, from which the larvæ inherit a constitutional weakness. The former kind, or class, I should say, breaks out in several colonies, and sometimes every colony in an apiary at once (which accounts for Mr. D. A. Jones's belief in spontaneous generation). Of the latter class, you will find only one or two in an apiary at one time. It is cured by simply replacing the queen. When the disease is caused from bad honey, the best thing to do, in nineteen cases out of twenty, is to let it alone. But if you want to cure it, take the honey from them, boil it, and give it back; or, better still, give them nice honey from flowers, or sugar syrup.

Some might say that I ignore the fact that learned scientists have traced the cause of the disease to bacteria; but I do not. We all know, who read the bee-papers, that the disease is accompanied by bacteria; but who can say that bacteria is the prime cause of the disease? No one. To say that it would give a hardy frontiersman the consumption if he were inoculated with the bacteria that accompanies that disease, would be about as reasonable as to say that one spore from the foul-brood bacteria would affect a healthy larva.

Can any reader of GLEANINGS think of any hypothesis, outside of the facts I mention, with which the different methods of cure can be reconciled? D. A. Jones cures by after-feeding, and not by starvation. Frank Cheshire effects a cure by feeding and not by phenol. Those who think they cure the disease by thyme, camphor, or salt, simply let it get well itself. Then there is N. W. McLain's method—a sure one; and C. F. Muth's method, another sure one; either one of which would be sufficient without the medicine. I could fill a book with proof of the assertions I have made; but I have said enough now to raise the ire of a great many, who, once getting an idea in their head, can never get it out. However, I am going to hazard just one more, and here it is: When there is a good flow of honey from the flowers, you can not hurt a populous colony of bees if you were to give them ten combs of the most malignant type of foul brood, in addition, of course, to the combs they have already.

Mobile, Ala., Sept. 4, 1886. GEO. H. HOYLE.

Friend H., you almost startle me by your reasoning; and if you are not exactly on the right track, I feel sure you are pretty close to it. For years back, the conviction has again and again been forcing itself upon my mind that the remedies prescribed and used for different diseases of the human family, in a great majority of cases have nothing to do whatever with the recovery of the patient. Sometimes some trifling thing, in some remote way connected with the treatment, has been the cause of the cure, in a way something like what you suggest in regard to foul brood. Let us go slowly, and let us have much charity while we push our investigations. I believe it is one of the hopeful signs of the present age, that we are more and more using reason and common sense, and are discarding blind hits in the dark,—guessing that a certain medicine *may* hit the spot.—I know you are right in one of your propositions; namely, that something strikingly like foul brood may exist in the hive because of a physical defect in the queen; and that changing the queen furnishes the cure. We have had such cases in our own apiary; but when shown to me I have at once decided where the trouble was, and effected a complete cure by giving the colony a good queen.—In regard to the second case, that it is produced by some kind of honey that kills the brood at such a stage, it seems to me this may be partly true, but not always the trouble; for instance, how can it spread from one apiary to another by a purchase of stocks, old hives, or fixtures? Scalding the food, whatever it is, would probably prevent it from going further.—Right here I want to tell you some of the difficulties we met at this point in our apiary in stopping it after the plan we have been working on. We at first concluded it was unsafe to open the hive in the day time, because the robbers might slip in and carry off some of the infected honey; therefore we decided to use a tent. But our apiarist soon declared the tent was even worse than no tent, because bees, returning from the fields, on finding their hive covered with a tent, would, a great many of them, carry their loads of honey into the hives adjoining on all sides. This, I have known for many years, was true. It requires the utmost caution and care to prevent the disease from spreading to hives adjoining the infected one, and I begin to think, of late, that perhaps the only really safe way for a person of average skill and intelligence is to take the hive after dark, when every straggling bee is at home, and burn up all the bees, combs, and stores, unless, indeed, we adopt your plan, and let it die out of itself. But, my good friend, please consider that hundreds of bee-keepers have been already adopting this latter plan, and it did not "die out," either—no, indeed. It spread until it ruined not only every colony in that apiary, but, when robbers set in, almost every colony in adjoining apiaries, in spite of every thing the owners could do. By all means, let us have reason and common sense applied to the matter, but don't let us get reckless.

PROFIT IN BEES.

HOW TO COMPUTE IT.

ONE is apt to conclude, from a superficial observation without experience, that all the honey that can be secured from a number of hives is clear profit. If there were no work attached, and no investment necessary, this conclusion might be correct. While taking these into consideration we find that some years we are able to secure a much larger profit than others, while occasionally the bees prove an actual loss. In making up the amount of profit and loss we must keep an account, first, of the money invested in hives, bees, and such other necessary appliances as we find necessary. We must allow a per cent for interest on the money invested, as well as a sinking fund for the wear and tear. Then our time must be worth something. True, we may be able to do the greater part of the work at odd times, so that some often conclude that this should not be counted; but this time is certainly worth something. If we were not attending to the bees we could be doing something else, so that the only correct way is to charge the profit-and-loss account with whatever the time required is worth. If you are required to feed them at any time, this also should be charged for what it is actually worth. In this way we know what the honey we secure costs us. If a patch of buckwheat, clover, or other plant, is sown for the express purpose of feed, this also should be charged.

Whatever honey is taken, whether used in the family or sold in market, should be credited at whatever it is worth. If some of the bees are sold, this also should be credited. Any expense incurred should be charged; and whatever is received for any thing should be credited; and the difference between the two will show the amount of profit secured or loss sustained.

With good management, bees, of course, can be made profitable; but a little experience will soon convince any one that it is not all profit; while if properly managed, with any thing like a fair season, bees may be made to yield a very large profit on the money invested. N. J. SHEPHERD.

Eldon, Mo., Sept. 1, 1886.

POLLEN FROM COTTONWOOD-LEAVES.

ALSO MORE ABOUT OPEN-SIDE SECTIONS, AND NO SEPARATORS.

DEAR EDITOR AND GLEANERS:—For several days past I have heard during the forenoon a loud roaring of bees in a small cottonwood-tree near my apiary. I at first thought they were gathering honey-dew, as I have noticed a slight sprinkling of this substance in a few hives. Upon closer examination I found that they were scraping a yellow substance from the surface of the leaves, and packing it in their pollen-baskets. The leaves of this tree are almost yellow with this substance, while those of larger cottonwoods near by show no traces of it, and I saw no bees on them. There are, of course, no blossoms on the trees at this season. I inclose a few of the yellow-coated leaves. An explanation will be appreciated.

SECTIONS OPEN ON ALL SIDES.

On page 689, after speaking of my new open-side section, friend Greer says: "It seemed to be intended to be used without separators, and, in consequence, with sections both wide and narrow. I had bulged combs, so I have attempted to devise a separator that could used with open-end sections."

Friend G. seems to have overlooked the fact, as explained in my pamphlet, that, in the section referred to, special provision is made for the use of *ordinary* separators, which renders his improvement in separators unnecessary. The only difference is, that the slots all around are a little shorter and deeper. They are 3 inches long, and scant ¼ inch deep, which enables the bees to pass freely, not only on both sides of the separator from one section to the other, but also between the outside row of sections and the side of the case. The wide openings also seem to serve as a more perfect guide to the bees, causing them to build straighter combs, and with less bulging. In fact, after learning how to use these sections, I have abandoned all separators in my own apiaries, as I find I can secure as perfect combs with far less labor and expense than with separators. I find that sections half full of fdn. produce more perfect combs than filled ones. OLIVER FOSTER, 296—325.

Mt. Vernon, Linn Co., Ia., Sept. 7, 1886.

Friend F., the yellow substance which you find on the leaves, and which the bees are using as a substitute for pollen, is a sort of fungoid growth, similar to the reddish substance often found on the leaves of raspberries, and which the bees have repeatedly gathered as a substitute for pollen. It would seem from this and other similar reports that bees can use a wide range of animal and vegetable secretions in the way of pollen, or as a substitute for pollen from natural flowers. Our older readers will remember that our bees were at one time gathering dust from the shelves of a cheese-factory, and that this dust, under the microscope, proved to be microscopic forms of animal life.—If your arrangement will enable yourself and others to get nice comb honey without the use of separators, it is something of more moment than we at first supposed. We should be very glad to have further reports from you.

FOUL BROOD.

THE DESTRUCTION PLAN VERSUS THE OTHER REMEDIES.

AT the close of the honey season last year I discovered that every colony in my apiary was more or less affected with foul brood. I had never seen the disease, and, of course, had no knowledge of it except what I had obtained from reading, and what I had heard in the discussion of the subject at the National Bee-Keepers' Convention in Cincinnati, Oct., 1882. It seemed to be the prevailing opinion of the members of the convention, that the surest remedy for the disease is to kill the bees and burn the hives and combs. I admit, that Mr. Jones, who was present, said that he could cure it by the so-called "starvation plan;" and Mr. Muth also asserted his confidence in the efficacy of salicylic acid; but the destruction method seemed to be the most popular with the bee-keepers present. I accordingly followed the destruction plan, with the exception of two that were very strong in bees, and had not a very great extent of foul brood. I had not time to try the starvation plan, so I put them in the cellar, with the intention of trying it this summer, if they were alive in the spring. They wintered well. During the winter I heard of Cheshire's pamphlet on foul brood. After reading it I concluded to try his remedy, phenol, on my affected colonies, when I should set them out in the spring. Afterward I read in the *Bienen Zeitung*, a German bee-journal, that powdered brown coffee is a powerful antiseptic, and a destroyer of foul brood. I now had two remedies, phenol and coffee, and I determined to try phenol on one colony and powdered brown coffee on the other. Accordingly I gave phenolated syrup (1 part to 500 parts), with a feeder placed over the cluster, and covered with a cushion. I did it as soon as I set them out in April.

I applied the coffee finely ground, by removing the combs one at a time and taking the powdered coffee in my hand, sprinkling it over the combs, bees and all, and into the cells and all the crevices and cracks, and over the tops of the combs when replaced. I treated the colony in this manner three times, at intervals of about a week.

The colony treated with phenol took about half a gallon of the medicated syrup. The last of last month I examined both colonies, aided by my friend, an experienced bee-keeper, C. Spangenberg, of this city, who has had some experience with the disease, and we found not only no trace of the disease, but both were in a healthy and flourishing condition.

From these tests it seems that each remedy is equally efficacious. Coffee is to be found in every house, but phenol is not so easily obtained, and coffee can not possibly injure the honey or the bees. I think the bee-keeping world is to be congratulated in having so pleasant a remedy, so easily applied, and so efficacious. I hope all who have the disease will at once try coffee. Grind or powder it very fine. J. W. VANCE, M. D.

Madison, Wis., Aug. 23, 1886.

Friend V., before you read what I have to say in regard to the above, please remember that I have very little faith in remedies, unless I can see some consistent reason for applying such remedies. And now excuse me for saying that I can not believe your finely ground coffee had any effect whatever over the foul brood. The phenol may have had some effect—I do not know; but as a good many have reported that they could not see that it made any difference, excuse me for being somewhat skeptical in regard to phenol also. Do you ask, how, then, the disease came to disappear? I think it disappeared of its own accord. A friend has written us, that, in order to test a remedy for foul brood, he used it on a part of his colonies, and used nothing on the rest. After some time, on finding the disease had disappeared on the treated colonies, he was ready to shout eureka, but concluded to examine those not treated before doing so. To his astonishment he found the disease had disappeared from all—those treated, and those not treated. Now, a great many experiments are made like the one you note above. The disease is gone, it is true; but how can you be sure the coffee or phenol either had any thing to do with its disappearance? See also last paragraph of article from E. C. Long, on page 701, last issue.

BRUSHING BEES OFF THE COMBS, VERSUS SHAKING.

CONTRACTING BROOD-CHAMBERS NOT SUCCESSFUL WITH MRS. AXTELL.

IN last GLEANINGS it was remarked, it did not so anger bees to shake them off the combs as it did to brush them off. True, it does not; but is there not danger of injuring the brood to shake it too hard? We know that queens' wings may be thus injured, and why not worker-bees? I generally shake them enough to shake the clusters off, and then stand to one side, or, rather, corner, of the hive, generally the southeast corner, of hives facing the south. Hold the comb in the left hand, and, with a soft grass brush (never a feather brush, if grass or weeds can be had), brush the rest of the bees off, being careful not to stand in the bees' way, so they can not alight in front of hive. Getting in their way also angers them.

This spring we thought we would try small brood-nests after swarming, so as to get most of the honey in the surplus-cases, as some are advocating. We had tried it before, but thought we would try it again, as it is claimed we did get most of the honey in such hives in the surplus-cases; but those colonies did not equal those hives that had their full number of combs. Before the spring harvest had closed, those colonies were smaller, consequently they gathered less honey. If a colony gets run down in numbers in mid-summer, with us, it does not of itself build up in time for the fall crop, generally commencing the last of August. Mr. Axtell and I conclude that seven Quinby brood-frames are none too many for this locality, except in the winter and early spring; then four or five are better; but seven and eight full of sealed stores are none too many to bring them in the best of condition through winter and spring, taking away empty ones in the spring and giving full ones, or adding a full one if those in the hives are full of brood. In order to have large colonies ready for harvests (large colonies are the paying ones for comb honey), we need in this locality to keep them built up, according to our opinion. Different localities need different management, no doubt. **Mrs. L. C. Axtell.**

Roseville, Ill., Aug., 1886.

Thanks, Mrs. A. No doubt you are right in regard to the danger of contracting the brood-nest too much. We believe in large colonies, and I have never yet seen them too large, providing the bees were all the progeny of a single queen.

FLAT-BOTTOMED FOUNDATION VERSUS OTHER MAKES.

THE ECONOMY OF THE LATTER OVER THE FORMER, PROVEN BY CAREFUL EXPERIMENTS.

LAST season I used flat-bottomed foundation for surplus honey. The bees, in trying to turn the flat bottoms into the natural form, spoiled some and neglected others. Having seen that, I looked up what you say on page 56 of your A B C, and, consequently, I made up my mind to get a foundation-mill which I could use for foundation for brood-nest and for surplus honey, as I had suspected the purity of the wax of some foundation for brood-nest, which I had received from England. I ordered a machine with ten-inch rollers, from you; and when I received it, in January last, I bought some pure wax and tried to make foundation for brood-nest. My first trial failed, as the wax sheets were so hardened by the cold weather that they generally broke. I read over the instructions given in the A B C book, and decided on shutting the windows and doors, and to place a big fire in the room. This, however, made but little difference; and so after a while I thought of dipping the wax sheets in warm water, about 110° F., just before passing them through the rollers. I tried this plan and the result was perfectly satisfactory, so that the sheets came out from the rollers very easily, and the foundation was perfectly even and nice.

In the latter part of February I gave to each one of my eight strongest stocks of bees two full sheets of comb foundation, the one being of my own make, and the other of the lot I had received from England, I placed the one at one side, and the other at the other side in the brood-nest of each hive. About ten days after, on examining I found that the foundation I had made was all accepted by the bees, cells having been drawn out nicely, and filled in with eggs, etc., and that the foundation I had received from England was all sagged, and only the cells at the lower part were half worked out. These I left in the hives for about two months, and by so doing I have been able to ascertain that the bees had been obliged to use them by thickening the upper parts of the foundation with their own new wax in order to prevent the falling-down of the above-mentioned combs, of which only the lower parts were occupied, and the upper parts were out of shape.

In March last I bleached some pure wax in the manner explained on page 288 of the A B C book, of which I made some foundation for the section boxes just in the same manner as I had made those for the brood nest. This foundation was of medium thickness, and its color was as white as snow; and having still on hand about three pounds of the flat-bottomed foundation I fixed full sheets of both in the section boxes, and in April I supplied the bees with both kinds mixed together in the crates for perfect trial.

About a week after, on examining the same, I saw that some of the flat-bottomed foundation was untouched, and some, especially that in the center of the crates, was in a bad state, so that the bees, in trying to turn the bottoms into the natural shape, had partly spoiled them. While all those made by me were accepted, and their cells or walls were beautifully drawn out, which looked very pleasant to the eye, and the bottoms of the cells were so thinned out that I could hardly see any difference between mine and the natural comb, except that mine were less transparent, owing only to the air, or to the imperceptibly fine spaces created in the body of the wax by its swelling when dipped in warm water, which air, on account of the warm and soft state of the wax, did not escape by the pressure of the rollers of the machine, and it caused the wax to remain in such a condition that the bees would hardly find any difficulty in scratching the thick parts of the foundation and using the shavings for the building of the walls. When I was rolling, Mr. F. Benton was present, and he told me that I was going to have a fishbone in my surplus comb honey, and so I thought that would have been the case; but after it was worked out by the bees I was very glad to see the unexpectedly excellent results.

Herewith I send you samples of the flat bottomed, and also of my own make of foundation, as worked up by the bees, that, in the event of any progressive bee-keeper wishing to ascertain the truth of what I have stated, he may be able to see the results with his own eyes, and thus he will be better able to judge than by explaining the matter scientifically. I would also beg all bee-keepers who love progress to try my system of rolling the wax, and discuss the method for the benefit of all, by taking under their careful consideration the state or shape of the wax scales secreted by the bees, and the manner in which they are worked for the comb.

M. G. Dervishian.

Larnaca, Cyprus, August 10, 1886.

Friend D., your experiments have resulted just about the same as our own. The samples you send us are beautifully thinned at their bases; and I believe no one has yet tried to explain why bees sometimes scrape down the base so thin, and at other times do not. The specimens you send make it very plain indeed that extra labor is required where the bees have starters of flat-bottom foundation.

COLOR AND QUALITY OF QUEENS.

FRIEND DOOLITTLE'S EXPERIENCE IN TESTING THE DIFFERENT RACES.

CONTINUING the subject of my article on page 643 of Gleanings for Aug. 15th, we have next in order the color of the queens of the different races of bees. The queen-bee of the German race seems to be the most constant in color of any of the bees which have come under my notice, all of which are of a very dark brown upon the upper side of the abdomen, while the under side of the same is of a yellowish brown. Right here I would say, that, in speaking of markings, I shall notice only those which are fixed, or permanant, as are those colors on the horny scales, or segments of the abdomen; for nearly all other markings are of hair or fuzz, and are soon worn off, so that an old bee does not look nearly as showy as a young one, when the color of said fuzz is new and bright. The head and thorax of all the races of bees are very much alike, except as the color of this fuzz gives them a lighter or darker appearance. To be sure, the Cyprians have a bright spot, or shield, as it is called, at the back of the thorax between the wings; but as I find this same spot on the best-marked Syrian and Italians, I do not see how it can be used as a test for purity of the Cyprian race, as some claim for it. Hence the abdomen of the bee is the place we are to look for the markings of the different races. With me, the markings of the Cyprian and Syrian queens are very much alike, except that the strips or rings on the Cyprian queen have more yellow on them than do the Syrians; and said yellow is of a bright orange color, while that on the Syrians is less bright, and often dusky. Every segment to the abdomen has both yellow and black upon it, unless it be the last one at the tip, which generally is nearly or quite all black, or very dark brown. The queens to these two races of bees are next in constancy of color to the German queens. The few Carniolan queens which I have reared run from a jet black to a light brown, one of which was fairly a blue-black, like a crow, or a crow blackbird, as we call them here. However, I did not keep this variety of bees long enough to give a decided opinion of the color of either bees or queen.

We next come to the Italians; and, without wishing to injure anybody's feelings or business, I am compelled to say that I can consider them as only a hybrid or mongrel race. There is no constancy of color, either in the queens or bees. Furthermore, I believe that it is this mongrel quality which gives them their good qualities as honey-gatherers. Surely no race of bees can be said to be *pure* whose queens vary in color from that of a German queen to a bright golden-orange color the whole length of the abdomen, some of the best specimens not even having a particle of black on the extreme tip, or point. Again, the workers vary from a dark chestnut color, so nearly like the German bees that only an expert can tell the difference, to those showing the fourth and a few even the fifth band of golden yellow. I used to think that queens of the Italian variety could be found that would duplicate themselves; but I have long ago given that up. However, the queen which I prefer for a breeder is one which will give the larger share of her young queens of a bright orange color. Such queens, mated with drones from a like mother as to markings, though in no way related as to blood, give me the best results in honey of any bees I have ever tried. In fact, I believe they have no equal as honey-gatherers; and with our present mode of management, together with comb foundation in our sections, they are all I could desire as comb-builders. I again repeat what I said in the A B C, several years ago, that $500 would not tempt me to exchange my present stock of home-bred Italians for those imported, or for any other bee which I am acquainted with.

QUALITY OF QUEENS.

Next comes quality of queens reared by natural swarming as compared with those reared "artificially" at it is termed. All, without doubt, know that I prefer queens reared under the swarming impulse; and about the only reason I can give for such a preference is, that such queens prove, on an average, to be of one-third more value to me than do those not so reared, with the exception of such queens as are reared to supersede an old queen, if reared while the old queen is still in the hive. In both of these cases the bees are not *compelled* to rear a queen in haste for fear that they will not have brood of the right age to rear another for any length of time, as is the case when the queen is taken away, but, on the contrary, they take all the time needed, knowing that they still have a queen to fall back on should they fail from any cause in their first attempt. Now, when a colony swarms, as the Italians frequently do before queen-cells are started, I do not like queens reared in such a case any better than I do when the apiarist takes the queen away. It is the presence of the queen in the hive at the time the young queens are being reared that causes the bees to give the best of a cradle, care, and food, to the royal occupant. This cradle, care, and food, make all the difference in the world in the future usefulness of a queen, the same as does a mother's nursing, teaching, and love, to the child over that of a stranger who cares naught for it except that, in some way, it lives till it can help itself.

I could go on at length and tell of the food left in the cell after the queen hatched; of how all the requisites are present to rear good queens, etc.; but that would not help any. It is sufficient for me to know that, on an average, queens reared while the old queen is in the hive prove to live one-third longer and do one-third more work than do those not so reared. G. M. DOOLITTLE.

Borodino, N. Y., Aug. 31, 1886.

Friend D., I do not know whether it makes any difference whether we call our Italians hybrids or something else, so long as we all agree that they are, all things considered, the best bees to be found; but I do not quite see the force of your reasoning, that they can not be a pure race because the queens vary so greatly in color. We have plants and animals of all colors, unless we take pains by careful selection to *fix* the colors.—Now, in regard to cells made under the impulse of natural swarming, do not Italians, as a rule, or, at least, a greater part of the time, send out a swarm before they start queen-cells? I have, a good many times, tried to prove by experiment, that queens reared while the old queen was in the hive, were superior; but so far it has not seemed to turn out that way. My experiments, however, in that direction, have been somewhat limited.

HONEY NOT SUITABLE FOR COOKERY.

MRS. CHADDOCK'S IDEAS IN REGARD TO IT.

WE were not to thrash till next Saturday; but yesterday Mr. Chaddock came in and asked me if I could get ready for them to thrash to-day. I said, "No."

"Well," said he, "Mr. Ellison is here, and they have no other job; and if you *can* get ready I guess I will try to thrash to-morrow."

"But we have not a spoonful of sugar in the house," I demurred, "and thrashers always expect good things—cakes and puddings and pies."

But Mr. Chaddock kept on.

"Couldn't you start a new fashion," said he—"get up all the other good things that you can think of and leave out the sweet things—you have plenty of honey, you know?"

Then a thought flashed all over me, "I'll do it! Bring on your thrashers, and I'll sweeten every thing with honey."

We live four miles from town; and in this jam-up hurrying, no man, woman, nor child could be spared to go after sugar; and if we had them at all for weeks, we must have them now. I had several Mason jars full of honey that was left on the plates after we had eaten the comb honey off; and with this honey I made grape pies—green-grape pies; put in a layer of grapes, and half a layer more; sprinkle in a small handful of flour, then four table-spoonfuls of strained honey; put on top crust, and bake; also Dutch pies. Put a handful of flour in the bottom crust, and even it around; lay thin slices of good ripe apple closely over the bottom; put in a lump of butter as large as a hickory-nut; three table-spoonfuls of honey; grate a little nutmeg on top, and fill up with *boiling* water; it has no top crust. This is the famous Dutch pie that the belles of Illinois bake to hand out to their beaux on Sunday night when they come home from buggy-riding, only they make it with sugar instead of honey. I made some blackberry pies too, and sweetened them with honey; and we made cakes, and cooked apple sauce. As Josiah Allen's wife says, "Every thing went off well"—victuals all eaten up slick and clean, a compliment to the cook. But I don't like to use honey for cooking-purposes. In the first place, it is *not* cheaper than sugar; and in the second place, it doesn't make things taste quite right; and in the third place it is smeary.

THRASHING-MACHINES AND THEIR IMPROVEMENT.

Thirty years ago or so I used to help my father thrash. He used a flail, and we children gathered up and carried out the straw after the grain was beaten out. We had a smooth mud-floored thrashing-floor between the hay end and the horse end of our barn, and there we toiled day after day. As I sit here writing I see the steam-thrasher at work. They began at eleven o'clock, and in one half-hour more they will have thrashed twenty acres of heavy oats. They can thrash 2000 bushels in a day as easily as any thing. The little black engine, puffing its black smoke all day long, does the work of twelve horses, and it eats only coal and water. I like to see a steam-thrasher at work. It just about comes up to my idea of business. I like to see four men on the rick when one used to be enough, and a whole string of men on the strawstack handing the straw to each other. I like to see three teams hurrying away with side-boards on, level full; I like to see the sooty engineer raking the fire and throwing in coal; I like to see the boys hurrying with the water for the thirsty men, and all the rush and roar of it. I think if I lived in Paris I should be a Communist; if in Chicago or St. Louis, I'd be an Anarchist and shoot policemen. As it is, I take a wild delight in having thrashers, harvesters, or any thing to break this everlasting monotony. They have finished thrashing now. It is seven o'clock; and since eleven this morning they have thrashed 1027 bushels of oats, machine measure. It will weigh out eleven or twelve hundred. They could have thrashed more, but they broke a rod or spring or something, and had to send a man four miles to a blacksmith to get it mended. That took about an hour and a half.

MAHALA B. CHADDOCK.

Vermont, Illinois.

My good friend Mrs. C., the reason why honey will not answer as well for sweetening pies, and other things of a like nature, is because there is too much fruit-juice already; and while sugar would take up this fruit-juice, honey simply becomes diluted by being added to it. Honey is not good to put on apple-pudding, for the same reason. It tastes watery, and somewhat insipid, while even *brown* sugar, with a little butter, is delicious. You can remedy the matter somewhat, by using candied honey from which the liquid portion has been thoroughly drained. If honey is not cheaper than sugar now, it bids fair to be very soon.—I agree with you in liking to see business going on; but I do not believe I should ever want to see the monotony of life broken by becoming an *Anarchist.* — At our recent State Fair I saw arrangements that do away with the hard labor of the *stackers*, to a great extent, and I presume that a few years more will show far *greater* improvements in this branch of farm industry.

AN A B C'S OBSERVATIONS.

WHAT KIND OF A BRUSH SHALL WE USE IN GETTING BEES OF THE COMBS?

NOTICING in a late GLEANINGS an article from "Josepho," something about brushing vs. shaking bees from the comb, I feel like adding my experience, which may be useful to some. I think "Josepho" must work with black bees only; for while I have found them easily shaken off, I find it very difficult to shake Italians from the combs; besides, sometimes I wish to get bees from combs containing more or less unsealed honey, and the honey shakes out. I have used the Davis and other similar brushes, and been provoked by the bees attacking the brush, struggling frantically into the bristles, and calling for help until the thing was full of angry bees, and the air too, for that matter, for anger is contagious, especially in a bee-hive. I felt like throwing the thing away, and did sometimes, when the bees mistook my hand for the brush.

One day, after I got a comb in hand I found I had left the brush at the house; so I pulled some green timothy straws and used them. I noticed at once that the bees did not return to fight. Afterward I made brushes by cutting the straw about 14 in. long, about 20 of them, binding about 4 inches from one end for a hand-hold. I laid them lengthwise on the comb, brushing the bees quite as readily as with any brush; and after a month's use in the apiary I did not notice a single instance where the bees seemed angered at the brush. I suppose, having been accustomed to being brushed from flowers by the waving blades of grass, they took it as a matter of course. Now, I suggest that brushes be made with long splints of buckeye or rattan, stained green, to resemble grass-blades, and see how the bees seem disposed toward them. The grass itself is not durable enough to be satisfactory. Now, Mr. Editor, I think I see you scratching down at the end of this, that old bee-keepers knew all about this long ago, and had discarded it, or that you had decided that bees were color-blind, and that color could make no difference.

DO BEES DISTINGUISH COLORS?

Speaking of color, bees, as well as every thing else, seem to accept red as the gage of battle. One day, having torn the wristband of my under-shirt (red flannel) so that a small portion was exposed to view, the bees attacked it vigorously, and to the exclusion of every place else where they might have stung.

COMB-BUCKET, HOW TO IMPROVE.

I want you, friend Root, to improve your comb-bucket in two respects. I want you to put legs to it, to extend down and out two or three inches, so that it may be set down on the grass without tipping over of its own weight; and instead of two wooden handles, make one a kind of sheet hook, to hook over the other, making only one in the hand. It is very difficult to hold the two when carrying the bucket full of combs. BEE-KEEPER.

Charleston, Ill.

No, friend Bee-Keeper, I am not going to say that grass was discarded long ago, and I very much doubt if a brush can be invented that will work as well as a fresh bunch of grass, or a bunch of clover.—Legs on a comb-bucket would cost money, and would also be unwieldy to ship. Have a lawn-mower, and keep the grass shaved off close.

FUN WITH THE BEES.

HOW MY BEES HAVE GONE WILD—THE OTHER SIDE OF BEE-KEEPING.

I TELL you, I have had fun with the bees this year, or else the bees have had fun with me. The "fun" may be said to have commenced May 18th, when a swarm issued about three weeks earlier than ever before. At that time the meads were growing white with clover, and I went to clapping on surplus arrangements, and dividing. But owing to an accident which had crippled me for several weeks in the spring, and the fact that the season had set in so much earlier than usual, I was not prepared for it. I had a plan I had resolved to try. I wanted, and still want, as it happens, to control the wild, everlasting swarming instincts of my bees. I did with a dozen or fifteen according to my notion, but I could not get around fast enough. I had to quit dividing, prepare the section cases, and put them on. I could not do that in a day. In the mean time the bees were sending off their skirmishing parties, and ere long the great swarming armies were upon me. Among them were some from those I had swarmed myself. I grinned a "just as I expected," and let them swarm. It was fun to see the bees go to work so heavily in the boxes, and how I laughed to take off some fine white sections about the day in the year that I had formerly seen bees first go lightly to work in them! About the same time I laughingly shouted, "Well, they are enterprising," when I beheld my 18th-of-May queen lead off a second swarm, one day earlier than I had ever had a swarm before. The season was now upon me. You all know what that means. I had little time to swarm artificially. I could only put together frames and sections, take off honey, hive swarms, and do the making and mending I found necessary. Soon one after another of those that had swarmed and been hived on the old stand followed the example of the first, and swarmed again; also several of those I had divided. Thus far all these unwelcome swarms, I found had been hived partly on frames wholly or partly filled with old comb. I smilingly decided that I would know how to fix them next year!

"Bees," said I, "when they swarm, want to set up housekeeping anew." I had long thought it, and now I was sure of it. Yes, I laughed in joy at the discovery. But the laugh turned against me, as you will soon find. Just about now so many things happened that I can not keep up in the telling. I had started into the season with 57 stands of bees and a queenless one, and about 35 empty hives available. I was going to keep down swarming, and bend all our resources and powers to the production of honey, that I was as sure of as the world, etc. Thus far I had controlled it in such a manner that, at the rate they were going, three days bade fair to utterly exhaust my stock of hives. No frame hives to be obtained, except two L. hives, about as much like mine as black is like green; no lumber to make any box hives, which I did not want any way; no time to make them or get anybody else to make them; no time, in fact, to do any thing but what was before me. Every one else was as busy as the bees were, and, as crowded as I was, what should I do? Well, it was part of my plan to set two old colonies side by side after swarming, and, after the queens had hatched, to unite them. I put the extra frames in the upper story, and ran for extracted honey. The frames of some colony that recently swarmed I would distribute among the colonies thus formed. These young queens, contrary to all precedent and all reason, went to swarming pretty soon after they got to laying. Also some weak colonies that I had utilized some of these old colonies to strengthen, swarmed as soon as they felt big enough. Also, if I chanced to put a frame containing unsealed larvæ into a hive with a cell nearly ready to hatch, they would start a new set of cells, and swarm; then again two or three weeks after I thought it was all over, here would come another puny swarm. All these things happened a number of times. Of course, these proceedings filled up my hives all the faster.

Every day for nearly two weeks, except a couple of very rainy ones (and I tell you I smiled broadly at the chance they gave me to get a little ahead), I would run down to about two hives to none available. So about six o'clock P. M. I would start to empty some hives for—to-morrow. I usually hived my swarms on six frames. Now I would take off supers, remove dummies, and poke a frame any where I could find to poke it. Colonies of to-day's swarming that I had set off from the old stand I would tear to pieces, or perhaps carry them mostly to the upper story of some hive that ought not to swarm. Several hives now held 12 to 20 frames. I had to put my swarms on empty frames. Accordingly I had to nail a lot of new ones that I had not expected to want, and fix fdn. in them. No time for *ennui*. I was kept on a hop, skip, and jump all the time. But, not content with contrariness, those crazy bugs must add to it capriciousness. I hived a big swarm one Sunday. The next day it arose and left. The new disease caught and ran like wild-fire. I would hive swarm number 40 as near as they would hive. Perhaps they would nearly all go in. If they did they would crawl out and cluster in front, on top and all around, more or less. All the way from half an hour to 24 hours they would swarm out and settle, to be hived again or go off, or simply adjourn to the front part of another hive—sometimes all three or less. It did beat all how they would cluster in front of another hive, and then, like the dog in the manger, neither do any thing themselves nor let anybody else do. "Well, that is funny," was my exasperated exclamation, a dozen or so times during the progress of these proceedings. Now I found out that many of my absconders were hived on empty frames. Indeed, I had ceased to put any old comb into the hives, before the swarming and absconding fever had reached its height. My bubble theory had burst. Several of my baby-swarms I put back, and half of them stayed. Of course, two or more swarms often went together. I would hive them together—it was the best I could do. Several times such a colony became queenless. I think this was because one queen was a layer and the other a virgin, and the bees of each swarm balled the queen of the other.

One of the hottest days—hot in more ways than one—a swarm settled high up and far out on a hickory limb out in the pasture. Soon another clustered on a young apple-tree. I was preparing to hive the one I could get at easiest, when another started to settle with it. I wrapped my sheet around it and held it there awhile, sweating at the same time. But I suppose the queen got ahead of me, for those bees would not stop any where else. I had no time to waste, so I gave it up. After they had settled, I shook them down on to the sheet. In the meantime my high-minded swarm had adjourned to the end of a lofty limb of another hickory in the other pasture on the opposite side of the apiary (some time afterward I saw another swarm make a similar change of lodgings). I was lugging my step-ladder, hive, sheet, and long-handled pruning-knife to their settlement, when I beheld them all at once move down to the front of another hive, the occupants of which did not know what to do with themselves. I thought that was as funny doings as bees could do. But the two swarms down by the apple-sprout did funnier still. When I came back to them they had blackened that big ten-frame two story hive. I did not move them—it was not worth while, even if I could.

The next morning I walked down the path just in time to see a swarm rise and start off. But in a minute another swarm issued from the hive, and another swarm sailed off about twenty paces behind the first, and the two moved like a funeral procession down the fence-row. As I stood and watched this proceeding I thought, "Surely not many an old apiarist has seen such a show as that." It was the funniest caper I had beheld them cut. I had to run in and tell mother.

Do folks ask, "Why did you not hunt out the queen, divide the swarm, clip her wings, cut out cells? or do this or that or the other, or something else?" Now, I do not want to take six sheets, in addition to what I have written, to tell why. But imagine, if you will, a little, nervous, dyspeptic fellow, with back and limbs perpetually getting the aches, muscles as soft as those of a sweet-sixteen society girl, joints so stiff and sore that, after sitting at the dinner-table twenty minutes when he meant to take only ten, he would get up and start off like a buck-kneed string-halt colt; supers getting full, weeds and sour docks growing that he did want so much to get shut off; letters lying unanswered, etc., and it may be not as much *sense* as Heddon or Root. I tell you, it was easier to *say* than do. You see, a weakling can not do as well, even at bee-keeping, as a stout healthy man. GEO. F. ROBBINS, 57—93.

Mechanicsburg, Ill., Aug. 20, 1886.

Why, friend R., you did have "business" in real earnest, did you not? What queer opinions we often get from reading the letters of our correspondents! Somehow I had got the idea that you were a great big man, like Doolittle and some of the others. One of *my* besetting sins is to make great preparations, in the way of business, for booms that never come to pass; but once in a while I happen to hit it, and then you do not know how I enjoy having plenty of every thing ready to take care of the business when it does come. I, too, am small, and not very strong, and quite often nervous and dyspeptic; but the stout, healthy men do not always move things very much further or very much faster than I do; so take heart, friend R.; the victory is not always to the strong.—By the way, you did not tell us how much money you made, after all your trials and tribulations had been passed through. I think you have learned something by experience, and next time you will probably find yourself a little cooler, and a little more master of the situation.

FOUL BROOD.

DOES IT EVER ORIGINATE FROM OVERHEATING THE BROOD?

WHEN a bee-keeper finds foul brood among his bees, about the first thing he thinks of is, How did it come there? About the first of June, 1874, I bought of N. N. Betsinger, then at Marcellus Falls, four swarms of bees. The frames of brood and bees were put into boxes, which were prepared for that purpose by making a small hole in each end, with wire screen over them. The day we went after them we had to wear our overcoats, it was so cold riding. We stayed over night. Next morning we put the bees in the boxes early in the morning, and started for home, about 30 miles. The sun came up bright and clear, and proved as much too warm for comfort as the day before had been too cool. With our calls and journey, the bees were shut in the boxes all day, and let out after sun down; with the warm weather outside, and the closeness of the boxes, a few of the combs (which were *old* ones, with very little honey in them) broke from the frames. In about 30 days I found foul brood in all of the four swarms. Later on I saw Mr. Betsinger. He said the bees were all right when we left his place; I also saw the bees and brood when Mr. Betsinger put them in the boxes, and saw nothing wrong about them then. Evidently the foul brood was caused by the great heat in the boxes, together with the neglect of the bees, through the day, to care for the unsealed brood.

Two of the young queens that were in other swarms, and mated that summer in my apiary, had this peculiarity about them. Some of the larvæ, when about ready for the bees to seal over, died in the cells: also some that *were* sealed over, and were formed bees with legs on them, died; but, unlike foul brood, this dead brood was only where the two queens were, and was not contagious.

I removed those two queens, and put others in their places, and the whole cause was removed.

As a proof that it was the heat in the boxes that caused the foul brood in the first instance, I will give my experience again, as late as 1885.

A very warm day, my bees were swarming at a tremendous rate. I had three swarms then in the air, when another swarm started to come out. I wished them to wait a few minutes, that I might care for the first three, and I put a board partly covered with wire screen over a hole as large as a man's hand with fingers and thumb straightened out, over the portico, fastening the bees in. While caring for the swarms that were out, I was detained longer than I expected; and when I returned to the hive where I had shut the bees in, I found the honey running out at the bottom on to the ground. I removed the screen-board, took the hive into the shade, opened the whole hive to the air, but it was too late; part of the bees were then dead; the others, though they could move a little, died very soon.

Within the hour I put bees (no queen) on to these frames of brood, as a test whether this state of things would produce foul brood or not, within five days *all the unsealed* and part of the sealed brood was a putrid mass, which the bees could never remove.

Now, from my past experience I think it safe to say that foul brood often originates in the apiary where it is discovered, by the careless operator, who leaves the brood from hives exposed to the scorching rays of the sun, thereby scalding the larvæ in such numbers that the bees can not remove them in time to escape the dreaded disease, foul brood, by the brood becoming a putrid mass. After a time the dead larvæ dry down, and the bees remove a part of it, then the queen lays in the same cells, and surely the larvæ will die and become a putrid mass, the same as the first. Usually, before the operator discovers that he has foul brood, he has changed combs, or in some other way has got into other hives; then the *question*, How *did* I get foul brood? H. D. MASON.

Fabius, N. Y., Aug. 20, 1886.

Friend M., your suggestions would be good had it not been well proven that foul brood is a plant, and can no more start spontaneously—*i. e.*, without seed—than can a hill of corn. Dead brood may start putrefaction, and this may present much the appearance of foul brood, but the seeds of foul brood must be present or it will never be foul brood at all. I scanned your communication with much interest to see if you did not, somewhere, mention whether or not friend Betsinger has recently had foul brood in his apiary.

CELLAR WINTERING AND SUB-EARTH VENTILATOR-PIPES.

DISCUSSED BY MR. HUTCHINSON AND DR. MILLER.

FRIEND MILLER:—I was very much interested in your articles on cellar wintering.

1. Let me ask you if *two* or more small sizes of tile laid in the same trench would not be better than one large tile, simply for this reason: There would be greater opportunity for the influence of the earth's warmth upon the air. The distance around a four-inch tile, where it comes in contact with the earth, is about one foot, while its carrying capacity is represented by 163 gallons per minute. An eight-inch tile has a surface of about twenty-four inches, only twice that of a four-inch; yet its carrying capacity is represented by 923 gallons per minute, or nearly six times as great. Do you see? Of course, the expense would be greater in using several small tile.

2. In your experiment in stopping up your four-inch tile, how far in from the inner mouth of the tile did you put your thermometer, far enough so that the warmth from the cellar would not affect it?

3. Have you ever noticed how many degrees the air is warmed in passing through your tile, or does it differ?

4. How did you learn that 100 ft. was long enough for your four-inch tile?

5. Your stoves are not in the same apartments as are the bees, are they?

6. Do you use them to cause ventilation or to warm the cellar, or both?

7. Why isn't your cellar warm enough without them?

8. At what temperature do you keep it?

I presume I have asked enough for one time.

Fraternally yours, W. Z. HUTCHINSON.

Rogersville, Mich.

Dr. Miller replies to the above:

1. Two or more tile of a given capacity will warm the air more than a single tile of the same capacity, as explained in the question, provided that length of pipe has not been reached where the temperature of the air in each case has become that of the surrounding earth. In this case, of course, the smaller tile would have no advantage.

I had at one time decided to lay two tiles in the same trench, to have the advantage of raising the air to a higher temperature; but upon further thought and experiment I concluded I could more satisfactorily and cheaply accomplish the same thing another way. An eight-inch tile will cost less than two four-inch tiles; and to make it bring the air to the same temperature, all that is necessary is to partly close the aperture where it enters the cellar, so as to make the air flow in at the same rate of speed at which it flows in the smaller tiles. In this case you would have the advantage of being able at any time, if you so desired, to open up the pipe to its full capacity and flush out all the air of the cellar. I think now of putting a ten-inch tile in the drain for my shop cellar; for, no matter how large, it can at any time be closed down to the capacity of a small tile; but if a smaller tile is laid it can not be enlarged.

2. The thermometer was thrust into the pipe as far as possible without putting it beyond reach to draw it out again. I hardly think the warmth of the cellar would have much effect upon it, as the contents of the whole tube would freely mix.

3. The number of degrees the air is warmed in passing through the tile depends mainly on the outside temperature. One day the air may be warmed five degrees in passing through, and the next day twenty degrees. The air enters the cellar, say at 38°; if the outer air is 33°, the air is warmed 5°. If the outer air the next day is 18° it must, of course, be warmed 20° to enter at 38°. In other words, the air enters the cellar at about the same temperature from day to day, no matter what the weather, and there is no perceptible change with

the change of weather, only as it changes very slowly in the course of the winter, and that through but a small number of degrees, growing a little colder as the winter advances.

4. I put the thermometer in the tube and then closed the tube. After remaining closed several hours, the thermometer showed the same temperature, substantially, as when entirely open. Of course, a longer tube could raise the air no higher than it would be when standing still in the pipe; and as 100 ft. raised it to that temperature, a longer tube could raise it no higher.

5. My stoves are in the same apartment as the bees, the nearest hives being about four feet from the stoves. When I used wood-stoves I put a board covered with zinc between the stove and the hives. Since using coal-stoves I use no such precaution, and I think the colonies nearest the stoves winter as well as others.

6. I just used fires occasionally to warm the cellar when the bees began to be uneasy in a cold spell, but concluded afterward that they did more good by increasing ventilation. I am now uncertain whether the heating or ventilating is more important, but believe both essential to best results.

7. Because, without stoves, the best cellars in this locality hardly keep above the freezing-point in the coldest spells. Possibly, some time I may succeed in warming by a sub-earth tube.

8. I try to keep it from 43° to 45°.

I shall be thankful for the severest criticism from friend Hutchinson, or some of our sharp-eyed Canadian friends; in fact, from any one; for in the matter of warming and ventilating I am as yet a novice. C. C. MILLER.

Marengo, Ill., Sept., 1886.

NOTES FROM THE BANNER APIARY.

NO. 82.

THE LAST NUMBER OF GLEANINGS.

IT seems to me that it was an especially *good* number. I should like to notice a few points.

THE WAX QUESTION, AGAIN.

Is not the only way in which this question *can* be settled—i. e., so as to be of any *practical* benefit to bee-keepers—to do as I have been doing the past four years; viz., hive part of the swarms on fdn., and part on empty frames? What do we care how many *pounds* of honey are consumed in the production of a pound of wax, if we *do* know that it is profitable to allow the bees to build their combs at certain times and in certain places, and at others it is better to furnish them fdn.? I feel that we have been using fdn. too indiscriminately; that to know *exactly* when and where, to me is a great question. I *know* that for *me* to use it in the brood-chamber when hiving swarms, is to lose money, and I see by this last issue of GLEANINGS that others are arriving at the same conclusion.

IMPLEMENTS AND LABOR.

It is a pleasure to see an article once more in GLEANINGS, signed "J. M. Shuck." His articles are always timely, valuable, and well written. When he says, "The time required to manipulate the invertible hive for the production of honey is not one-fourth the time required for a non-invertible hive. *There is the gage*, come who may," he very tersely covers *nearly* the whole question. This question of implements and labor is an important one, and I feel that Bro. Doolittle does not take the correct view of it. The quotation that he gives from somebody's letter; viz., "The use of my hives and surplus-cases will give you more honey than you now produce, with one-half the labor," ought not to be construed to mean that the use of certain hives would enable the bees to gather any more honey, any more than the use of the mowing-machine, horse rake and fork, would enable us to secure more *hay* per acre; but the use of these improved implements enables us to secure the same results with *less labor*.

BLACK BEES; ARE THEY EQUAL TO OR BETTER THAN ITALIANS FOR COMB HONEY?

The point that you make, Mr. Editor, in your foot-note to Mr. Coleman's article, in regard to his having *all* black bees, hence could not make a just comparison, is a reasonable one. I think, too, that the majority of bee-keepers favor the Italians; but for the production of *comb honey* I doubt if there is a better bee than the black bee; *possibly* a cross between them and the Italian is better; but were I to choose a pure variety I would unhesitatingly choose the blacks. When handling combs, looking for queens, and the like, Italians are more pleasant to handle; but in raising comb honey this is something we seldom have to do. Ever since I began the production of comb honey I have had from five to twenty colonies of blacks (controlling, of course, the production of drones), and these black colonies have *stored as much honey upon an average as have the Italians*, while the honey is of finer appearance. This very propensity of the blacks, to run off the combs when being handled, is really valuable when we manage bees by handling *hives* instead of combs, as the hive is more easily cleared of bees, just the same as I can clear a case of sections from black bees twice as quickly as I can when the bees are Italians. I *do* think the blacks are more inclined to rob and to suffer from the attacks of the moth; but as I have yet to lose my first dollar from *either* source, I consider these minor points.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich., Sept., 1886.

FOUL BROOD.

"ALMOST SCARED."

FRIEND ROOT:—I can not but feel sorry for you when I think of "the dire calamity" which has befallen you; but, are you *sure* you *have foul brood?* I consider myself an old veteran in the foul-brood business, and you just look on page 388 of the *Canadian Bee Journal*, and see how near I came to being "almost scared" about foul brood here in our apiary, where every thing is nice and new, and every precaution had been taken to not have the disease in our new apiary. If you have the "real stuff," then you are doing right to burn up the combs. But, be it whatever it may, turn on the steam and give it a warming-up, anyhow. A. W. OSBURN.

Havana, Cuba, W. I., Aug. 25, 1886.

Yes, friend O., we feel sure we have the "real stuff." In spite of all we can do, it continues to exist in our apiary. See Our Own Apiary, this issue.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Aug. 15.

CHAPTER XXIII.

We remember . . . the cucumbers, and the melons, and the leeks, and the onions, and the garlic, which we did eat in Egypt freely.—NUM. 11:5.

Continuing the conversation which was interrupted by our last chapter, I remarked:

"Then, my friend, this wonderful corn has been brought up to its present perfection by your own efforts, has it?"

"Well, somewhat; but it was a very good corn when I first began growing it."

"What do you call it?"

"It is the Crosby Early sugar corn."

We talked about a good many other things; and as I bade him good-day I thanked him for the important facts he had furnished me. He in turn thanked me for the pleasant chat I had given him. I started off at a rapid rate, for my time in Arlington was worth to me—how much? Well, something like five or ten dollars an hour; that is, I had paid out an amount of cash to come so far that would make every hour of my stay cost me something like five or ten dollars, and therefore even the minutes were precious. I had not gone far, however, before I thought I heard somebody behind me. It was our old friend. As he came up he remarked, "If you will write your name and address on a paper I will send you some of the seed of that corn by mail when it gets ripe."

"Why, my good friend, I am much obliged to *you;* and if you will give me your name also, I will with pleasure send you our bee-journal for a year, that I was talking to you about."

He said he was getting to be so old he could not read very much; but he said he would be very glad to look at it, especially since I told him it contained more or less pictures every month. When I came to write his name in my memorandum-book, what do you think it was? Why, this: *Josiah Crosby.* I looked up in astonishment as I put out my hand again to him.

"Why, my friend, is it true that I have been talking this morning with the originator of the Crosby Early sugar corn?" He bowed and smiled.

Now, dear friends, I warn you, before you send to friend Crosby for some of his sweet corn to plant, that unless you have the Arlington soil, or soil as they manure it, your corn will turn out like that which we have already, pretty much.

I noticed on friend Crosby's place they were pulling up cabbage-stumps, and drawing them off in carts to a compost heap. I noticed afterward, also, that, when composted with manure, they gave a decidedly rich smell. I asked Mr. Crosby if they never fed them to stock; but he said there was not stock enough to consume the hundredth part of them. They are composted, and worked back into the ground again. I asked him if he had ever been able to make any estimate of their probable value for compost. He said he thought a ton of cabbage-stumps was worth pretty nearly if not quite as much as a ton of night-soil, which is largely used in the gardens of Arlington. Their plan of using night-soil is to make heaps of stable manure in the fields, and then hollow out the center so as to make a cavity. The night-soil is now drawn in carts and dumped into this cavity. The manure is now thrown over it, and the whole heap is forked over from time to time until it becomes a dark homogeneous mass, ready to be spread and plowed under.

Dandelions are a favorite crop in Arlington. Sometimes we found half an acre of them, and they told me that they found them to be a very profitable crop. In early spring the dandelions bring $6.00 a barrel, for early greens. It takes two years to get a crop; that is, the seed is sown in the spring, and the plants are cut for market the next spring. These cultivated dandelions are very much larger than our wild ones growing in the fields. The plant is cut for market just before it begins to blossom.

RAISING CUCUMBERS IN GREENHOUSES, FOR THE BOSTON MARKET.

Mr. W. W. Rawson is the great cucumber-man of Arlington. He has seven greenhouses devoted exclusively to raising cucumbers. These seven greenhouses contain over 1000 hills. The vines are trained on a trellis running about a foot below the sashes. My attendant told me they picked one day 2000 cucumbers which were sold in the winter at 30 cts. each, or $600 for one day's picking. They warm the houses by steam. It has generally been thought a difficult matter to raise cucumbers under glass; but my attendant said there was not any trouble at all. I suppose there is no trouble, because he has learned just how to do it, and so it becomes as simple as many other things which we do daily, and think nothing about it whatever.

"My friend, how about fertilizing the blossoms? Where you raise cucumbers or melons under glass, you are obliged to carry the pollen from one flower to another, are you not?"

"Why, bless your heart, Mr. Root, *we* don't carry the pollen — the *bees* do that."

I was all attention all at once, you may be sure; but he seemed to take it so much as a matter of course that I began wondering whether he really knew what he was saying, so I ventured — but while I spoke, my mind ran vividly over my experiments with bees in a greenhouse years ago, and this is what I said:

"But do you keep *bees* all winter long in these greenhouses?"

"Why, yes; to be sure, we do."

"But where are they now? I don't see any."

"Oh! we take them outdoors as soon as it is safe to have all the doors and windows open."

Perhaps he thought it took a good deal to satisfy my curiosity, so I ventured to ask if I might see the bees where they were now. Sure enough, there were seven hives of bees. They were in old-fashioned tall box hives, and set on a bench side by side. They did not get any honey from them; in fact, he said they did not pay any attention to that part. All *they* keep them for is to make the *cucumbers* bear, and I tell you they *do* bear, judging from the specimens I saw hanging on the trellis, even as late as the 28th of July. I walked up to the extrance, scanned the bees closely to see if there was any Italian blood; but they were just common black bees — nothing more. He said they bought them for Italians, and I promised to send him our bee-journal, to post him on bees in return for the way he had posted me on cucumbers.

"But, my friend, do the bees not die sometimes? Don't they fly up against the glass, and worry themselves to death, and then fall on the ground?"

"Oh! they do to some extent when we first bring them into the house; and sometimes a colony does not seem to work well on the cucumber-blossoms. In that case we try another. The price of a colony of bees is not much compared with the product of our greenhouses. As a general thing, after the little fellows get to work on the blossoms they find their way back to the hive as well as if they were out of doors. And what a humming they do make, some of the coldest winter days, when the sun comes down so as to brighten up every thing!"

I asked him if the cucumbers did not require a very high temperature. He said they did better with a temperature between 70 and 80 degrees; but he did not think it was a matter of so very much importance after all. Of course, they grew faster when the temperature was just right.

While my friend was talking I could not help smiling at the recollection of an incident related by Mr. L. C. Root at our little bee-convention at Versailles, N. Y. He said, during his speech, that a lady living near him complained about his keeping so many bees; but when asked to tell just where they inconvenienced her, her principal grievance was that she was unable to raise a single *cucumber* in her garden since he had been keeping so many bees in the neighborhood. Just think of it, friends! I do not mean to be hard on the poor lady; but it is well worth our while to stop a minute and consider how much foolish superstition is passing current among people, in place of real science. As I stood in front of that row of seven box hives of black bees, I stood for a moment in silent wonder, to think how two such great industries were moving along in our nation, and yet the busy brains of the one industry knew hardly any thing about the busy brains of the other. My friend by my side knew all about cucumbers, but he did not know a thing about bees. I am not sure he knew there was such a thing as a movable-comb hive in existence, and yet he was a bee-*keeper*. He could not raise cucumbers without being a bee-keeper. I knew all about bees, and could have pulled all his old box hives to pieces—could have shown him the queen, and talked for *days* to him without having exhausted the subject of bee culture, and yet I knew comparatively nothing in regard to *his* industry.

Now, another point comes in right here: On one of the benches I saw about a dozen of the most beautiful cucumbers, it seems to me, that were ever produced since the world began. May be the ancient Egyptians used to have some that would compare with this lot, but I hardly think they did. They were not only larger than any thing I ever saw before, but they were beautifully symmetrical in shape, and of a pearly whiteness that made them wonderfully attractive to the eye.

My guide seemed inclined to pass along; but I called to him to hold on a bit.

"My friend, what kind of cucumbers are those? and how in the world does it come that such a beautiful lot of them should be left here in this out-of-the-way place?"

"Why, Mr. Root, those extra-fine cucumbers are saved for the seeds, and these seeds are to be planted in the greenhouses next year. They are the most perfect and finest specimens we can select from our whole crop."

"But will you sell me some seed from these? I would give their weight in gold, almost, for a few of them to get a start of that variety."

"Why, the variety is the 'White Spine' which we advertise; but I don't know whether the boss would let you have any seeds from *those* specimens or not. You will have to write to him about it."

I did write to him, you may be sure, just as soon as I got home, and here is his reply:

> *Mr. A. I. Root:*—Your esteemed favor is at hand. Your order will be mailed to-day, except the Rawson's White Spine cucumber. This stock we at present have not got, but later on will send you some seed taken from Mr. Rawson's own stock, the same stock as "those cucumbers" were from. Mr. R. regrets that he was out West when you were at his place, as he might have helped to show you round. W. W. RAWSON & CO.
>
> Boston, Mass., Aug. 5, 1886.

Now, then, no doubt all of our readers are just like myself, and want a few of those choice seeds. I suppose they are really stock seeds, such as friend Green alluded to on page 607 of GLEANINGS; and you know stock seed is not often for sale. I would gladly divide with you, but the few seeds I am to get would not begin to go around among so many friends. You can buy the seed of the Arlington "White Spine" cucumber by sending to Mr. W. W. Rawson, Arlington, Mass. But the great point for us is right here: Just think of the wonderful importance of having the very best seed that can be procured, when the crop of cucumbers is to amount to several thousand dollars! Those who have sold cucumbers in the market very well know how much more they can get for a nice, handsome-shaped cucumber, compared with a crooked, ungainly one; and, without question, choice seeds from the finest specimens will be more apt to give us a handsome crop of cucumbers than seed collected from refuse, crooked ones. And what is true of cucumbers is true of every thing else. It is of as much importance to please the eye of customers as to please the palate; and God has placed it within our reach to please both in a way we perhaps little know of now. Now, then, in saving your seeds for next year, or next summer's planting, remember, "Whatsoever a man soweth, that shall he also reap." I will try to save a lot of seed from the stock seed I am to have, and then I will gladly furnish you all, if you prefer to buy of me.

Some of the friends have written to me, making inquiries in regard to the culture of cucumbers under glass, but I suspect it will be almost impossible to lay down, in books, rules that will enable you to succeed without a good deal of "cutting and trying," as it were. Try one or two hills at first, in a small greenhouse; and when you succeed with a few, try it on a larger scale. But before you go into it very much, be sure you have a market for them, after you get them raised. We purchased some cucumbers early in April, and tried them on our wagon. But nobody had been used to seeing cucumbers at that season of the year, and they treated them about as they did our lettuce in January. We tried at first to get 10 cts. apiece for them; then we tried to close them out at 5 cts., and finally at 3 cts. But it was not the time of year for cucumbers in Medina, and folks would not pay as much for them then as they afterward paid in the latter part of June. In fact, just a little before the usual time for raising cucumbers in Medina, we got 5 cts. apiece for a dozen or more every day, and could not supply the demand. So you see you will have to work up a market at the same time you learn how to raise cucumbers. May be you will wonder why I chose this singular text. Well, it seemed to me a little funny that the ancient Egyptians used to relish garden vegetables just as we do—cucumbers, melons, leeks, onions, and garlic. Somehow my heart warms toward them in reading this little verse, for it brings me nearer to them. They were human, just as we are, with human wants and longings.

CHAPTER XXIV.

Seest thou a man diligent in his business? he shall stand before kings; he shall not stand before mean men.—Prov. 22:29.

On the opposite page you will find a sketch of friend Rawson's ten acres under glass. When I first came on the grounds I turned up by the building in the foreground which you see surmounted by a windmill. I passed along by the alley on the left-hand side of the picture until I found a boy hoeing lettuce. I inquired for Mr. Rawson, and the boy told me Mr. R. was absent on a vacation. But he further remarked, that the best man to show me around would be the foreman of the greenhouses, whom I would find at work in the building mentioned. I have forgotten the young man's name, but he was very obliging and communicative. He went all over the grounds with me you see in the picture. The four large greenhouses in the foreground are those used for raising cucumbers. The three long ones on the left-hand side of the picture have movable sash, and these sash are taken clear off in the summer time. This latter plan of greenhouses has some very great advantages, especially the one permitting the sash to be removed, so we can reap the benefit of summer showers. These greenhouses are all warmed by steam, as I have before remarked, and my attendant informed me they had no trouble whatever in using steam in place of hot water. You can run your pipes up and down anywhere you wish, providing you remember to put a drip-pipe wherever there is a low point or depression in the steam-pipes. This drip-pipe is to have a valve, which is kept open just enough to let the condensed water get out of the way. The back part of the grounds is covered with hot-beds and cold frames. During severe weather they use large mats made of very tall rye straw. In fact, they raise a patch of rye every year in this wonderfully rich ground, in order to get straws six or more feet in length for making mats. The mats are woven by the watchman in the night time. When these mats are removed from the glass, as they always are when the sun shines, they must be placed somewhere. Now, even a simple matter like this is sometimes quite a problem. If you lay them on the ground they will get wet, and rot; if you lean them against the fence the wind will blow them down, and the most convenient way Mr. Rawson finds to be a tight board fence set on a slant You will notice such fences at intervals among the hot-beds and cold frames. These fences also serve as windbreaks.

At the left of the picture you will notice a six-sided inclosure, with one side left open. This is for composting manure. It keeps the manure from getting scattered about in the dirt, and is easy of access from the open side. My attendant, though a young man, has entire charge of the heating arrangements, and he told me that, instead of employing expensive city plumbers, they cut their own pipes and put in their heating arrangements, according to their needs and requirements.

The building surmounted by the windmill contains the steam-engine used in pumping water when the wind does not blow. They always use wind in preference to steam when the wind blows. I believe that the boiler for heating the greenhouses is also in this building.

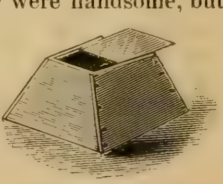
When I spoke of looking over the hundred-acre farm which also belongs to Mr. Rawson, my guide very obligingly asked me to take a seat in one of the market-wagons that was standing near the building, right where you see a wagon in the picture. The horse that drew the wagon was so well accustomed to his business that he took us wherever we wanted to go, almost without being told. I presume I asked more questions than some of the newly fledged scholars in A B C of bee culture.

I was particularly taken up with a field of Boston marrow squashes. The vines were so large for the time of year, and so exceedingly thrifty, I burst into exclamations of surprise.

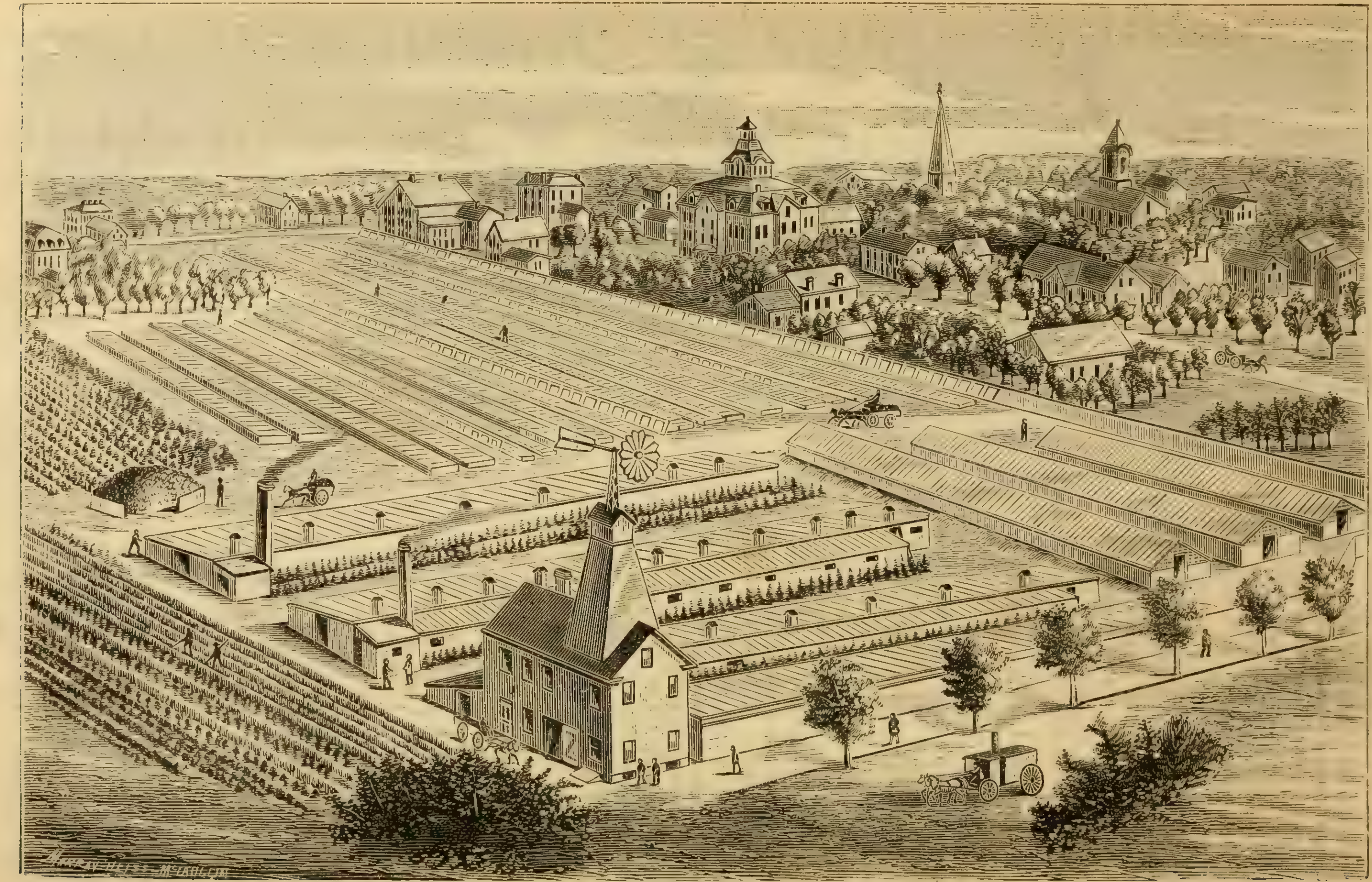
"Why, my friend, were these not raised in a greenhouse, and planted out here?"

"No, sir; the seeds were planted, and the vines grew right where you see them. Aren't they handsome?"

I admitted that they were handsome, but I didn't feel quite satisfied with his answer. Why, some of the squashes were almost ready to send to market, and it was not even the first of August yet. Before we got around, however, my greedy eyes caught



RAWSON'S BOX FOR STARTING SQUASHES, ETC.



W. W. RAWSON'S CUCUMBER GREENHOUSES AND HOT-BEDS, ARLINGTON, MASS.

sight of a heap of boxes like the one shown on the preceding page.

As he was driving past the heap of boxes, I asked him to hold on a bit.

"Will you please tell me what those boxes with sloping sides are for?"

"Why, that is a secret; but as you have got hold of it, I suppose I shall have to admit that they are what we use over those squashes you saw. You seemed surprised to see them so much in advance of the season. Well, those boxes are the things that did it."

These boxes are made of half-inch lumber, and of such size that a pane of glass 8x10 slides easily in grooves, as shown in the cut. The squash-ground is prepared in the best manner, the seeds planted, then these boxes are placed over the hills, banking the earth around to make it tight. The sun shines through the pane of glass, warms up the earth, and starts the seeds two or three weeks sooner than they would start without this protection. When the vines get large enough the lights of glass are slipped out, and the box serves as a protection from the bugs, as well as from the cold winds. Now, the great improvement in these boxes is, as you will notice, that they pack one within the other, so they can be nested and carried about, or stored away in a small compass. In fact, they are almost like solid lumber.

Of course, their use is not restricted to squashes alone. They can be used for cucumbers, melons, cauliflower, or any thing else that you discover by experience will bring a good price in your market a little in advance of the regular season. My opinion is, that they would pay well for forwarding early potatoes. Our town of Medina won't pay very much money for fancy vegetables at high prices; but they will pay from 40 to 50 cents a peck for early potatoes, and they will take a good many of them too. We are planning now to use 400 or 500 such boxes, to give our Early Ohio potatoes a big start next spring. I have ascertained by careful figuring, that these boxes can be furnished for 10 cents apiece, or 100 for about $8.50. Glass, 8 x 10, will cost you by the box not to exceed 3 cents per light. If you are careful not to break the glass, it is worth all it costs, almost any time. We have been using hand-glasses with a gable end of cloth; but they are unwieldy, and ricketty to handle. The boxes shown above can be moved about in a wagon, to put in place, and the lights of glass slipped in afterward, so as to avoid breakage; that is, the glass can be handled by itself, and the boxes by themselves.

Of course, the matter of finding a market for the stuff we raise is always before us, and is always one of the great important problems. While traveling, I took particular pains to see how largely vegetables and garden-produce entered into the bill of fare of our different places of refreshment. I was so absorbed with what I saw and learned at Arlington that I could hardly take time for my meals; but I knew that it was impossible for me to do good solid work during the few hours I was to stay, in hunting up valuable facts for you, my friends, without my regular meals; and when I waited in a restaurant for my dinner I began wondering whether the Arlington eating-houses would show on their tables the good things I saw abroad in the fields. Well, this first dinner consisted principally of rolls bought from the baker's wagon. The lady who kept the place went out to the wagon and purchased them while I was sitting at the table. Not a vegetable greeted me. For supper I stopped at the only hotel in Arlington. To get to the dining-room I was obliged to pass through a whisky-shop. The landlord explained that they had just finished supper, but he guessed the girl could find something for me. What she "found" was bread and butter—both bad; some greasy boiled ham—*very* bad; not a potato, not a vegetable of any kind. I concluded I should have to make up for the lack of other things by a piece of berry pie which she shoved at me toward the close of my meal. The berry pie was bad too, as well as the coffee. The girl acted as if she felt injured because I came in to supper after the rest had supped. There was one consolation, however: It did not take me long to finish my supper, and so I had the more time for the gardens. I thought that perhaps the landlord would name a moderate sum, in consideration that there was not much left after their regular meal: it was, however, "A half-dollar, sir." I presume likely his interest centered more on the contents of the bottles behind him than in giving a customer a "comfortable" meal. I wonder if the Arlington people have not got something like our Ohio Dow law by this time. If they have, mine host has probably gone out of the business, for he certainly could not make a living furnishing such suppers for half a dollar, for his patronage would soon be lost.

Now a word in regard to the girl who waited on me. Had this woman had the Savior's love in her heart, it would have been a pleasure for her to wait on a stranger, and hunt up the best that could be found for him under the circumstances. She knew, or might have known, that her employer received half a dollar for the supper she was to furnish, and it was her duty to reason something like this: "If we get half a dollar, we can well afford to give this stranger the best the house affords." One who is building up a business, or assisting to build up a business, feels thankful for patronage, and I do love to see people show their thanks in looks and actions, under such circumstances. A pleasant, cheerful willingness to wait on the great traveling public, is worth more than money in the bank to any man or woman who wants to succeed, whether such persons be gardeners or hotel-keepers.

Well, I did not succeed in finding any fine vegetables on the tables at Arlington, so I thought I would try the great city of Boston. I was told that the farming and gardening community generally stopped at the New-England Hotel, as it is quite near Boston's greatest market. I was disappointed in one thing at the outset—I could not have any breakfast before 6 o'clock, and 6 o'clock in Boston is about 7 o'clock in Ohio; therefore I walked over miles of the city, before breakfast was ready. Now for the vegetables seen displayed in such wonderful profusion, right close by this large hotel. Well, for breakfast I had just *two baked potatoes*—not another thing in the vegetable line.

At one of the railroad eating-houses on the way home I was served with a dinner comprising almost all vegetables grown in gardening. It cost 75 cents. I took breakfast on the dining-cars, for which I paid one dollar. I hope you will excuse me for saying that it seems almost wicked to pay a dollar for a breakfast, especially where one's wants are few and simple. One reason why I decided to have a dollar breakfast was, that I wanted to see if I should find the products of the garden as well as of the apiary here. I was abundantly satisfied. The dining-car proprietors not only provided almost every vegetable in their bill of fare, known to the garden, but the dishes were cooked with wonderful culinary skill. The waiters were pleasant and courteous, and the whole paraphernalia of the dining-table is like a beautiful picture. Fruits are served from almost every clime, and these, too, are the best and *handsomest* that can be bought for money. I confess that I greatly enjoyed such a breakfast, for the proprietors evidently spared no pains to make it worth a whole dollar; and the thought that you were sweeping over the landscape at the rate of forty miles an hour while you sipped most excellent coffee, and tasted of the viands prepared with the best skill that the present age affords, helped to make one feel that a dollar invested occasionally in this way was not so very bad an investment after all. The market-gardener who supplies the dining-room cars ought to be one of the most progressive ones of the present age.

Now, then, is it advisable to let vegetables and garden-stuffs have a place on our tables every day? and should they enter largely into what goes to make up our "daily bread"? I think that, in a sanitary point of view, the question has been fully decided. It is true, people sometimes get into summer difficulties by eating fresh fruits and vegetables; but I believe such troubles are brought about oftener by a scarcity of fruits and vegetables than by a surfeit; that is, on tables where fruits and vegetables are seldom seen, everybody is so ravenous for them when they make their appearance, nature is upset by too large a dose on too short notice; whereas, had there been fruits and vegetables at each meal, more or less, *the year round*, nature would suffer no such shock, and no bad results would follow.

The appointments of the meal I mentioned, in the dining-room car, were such as to make one feel pleasant and happy; now, of course, I would not recommend that every day laborer or farmer should deck his breakfast-table with cut glass and silver; but I do think there might be a very great improvement, and with no great outlay either. The women-folks (if not overworked) are ready and willing, and will gladly do their part. A few flowers put in some pretty little vase might prove one of the best investments ever made for the breakfast-table, just because the sight of them calls out our better feelings. Now, a surprise in the way of new vegetables nicely prepared may accomplish the same object; and suppose they should divert conversation during the meal to the discussion of new fruits and vegetables, seed catalogues, etc.; suppose, when the radishes are passed, Johnnie proudly announces that *he* raised them in *his* garden; or suppose that papa announces that the peas we have for dinner are the celebrated Stratagems, advertised through the papers so much, and through the seed catalogues, and so on; who can estimate the effect on these little characters just forming, gathered around the family board, in contrast with having the talk during the meal occupied by scandal or neighborhood quarrels, lawsuits, and such like? I need not tell you how hard the mother toils to provide food that she knows the little ones like. Who has not noticed her smile of pleasure when some little chick announces, "O mother! where did you get such nice squash? I like squash, *I* do."

Now, my friends, we can not all of us be engaged in agriculture as farmers, but we can be gardeners, at least to the extent I have described on some of the earlier pages of this book; and whatever our calling or profession, we must certainly meet together to take some food of some kind, at least two or three times a day—three times, I believe, as a rule. What can we do to make these meetings profitable, and to strive to have them lead toward righteousness and godliness? I feel sure that one great means of leading our little flocks heavenward is by the associations of these daily meals; and when the head of the family bows his head to give thanks to the all-wise and kind Creator, is it not his duty to see that the table is well supplied with something to make the simple prayer consistent? Let there be something placed before the little ones to lead them to feel thankful to the great Giver of all good. What shall it be but the products of the soil, largely, even if such products must come from the market-wagon?

Fruits and vegetables are already largely used for presents to the sick, presents to friends, and for presents to the loved ones at home. Some years ago I happened to be in the large city of Cleveland, in company with my old pastor, Rev. A. T. Reed. A little before train time he made the remark that he never liked to go home from the city without taking some sort of a little present for the children. What should it be? and who has not had similar feelings? Great shops and stores were all about us, holding out inducements to purchasers, and many of these shops and stores were kept to supply this very want. What sort of a present should a minister of the gospel carry to his children? I watched him with much interest. He went to a green-grocer's, and purchased a little basket—one that held about a peck, for instance. The basket cost only a nickel, but it was new and clean. This made it proper for the occasion and circumstances. Now, then, for the contents. I believe it was mostly if not all vegetables from the garden. As it was early in the spring, no such things had at that time appeared in our Medina market, and I especially remarked how handsome a bunch of beets looked. They were grown rapidly under glass, and were some of the choice varieties advertised in our seed catalogues, that look so very tempting when first taken from the soil. The tops looked fresh and green also. Well, the sight of the contents of that basket had something to do with giving me the "garden fever." The basket and contents cost some 30 or 40 cents; but as I glanced at them repeatedly I could not help but think I agreed with him that there was nothing in that whole great city so pleasing and appropriate for the loved ones at home as this little simple token of his love and remembrance of them—a little basket of garden vegetables. I have always had a particular fancy for beets and radishes tied up in neat little bunches ever since that time; and while I think of it, early beets are one of the things with which the market has never been overstocked, to my knowledge. For many months during this season just passed, early beets retailed in Cleveland at 10 cts. per bunch, or 80 or 90 cts. per dozen bunches. At the same time, fine large bunches of radishes and onions were selling for 15 to 20 cts. per dozen bunches. Some way it seemed as if the great vegetable-loving public could never get beets enough.

Early beets were the second crop on our "New Agriculture" grounds; that is, they were planted between the lettuce; and when the lettuce was all sold off, the beets came on. The boys on the wagon reported every day, right along, "Beets sold out, and more wanted." And so the demand kept up until I began to be greatly astonished. After people began to have plenty of them in their gardens, however, the demand dropped off. They are hardy, and easy to raise. Thousands of plants can be easily secured in boxes in the greenhouse, or in boxes in the windows I have described; and just as soon as the weather will permit any thing to grow at all outdoors, with the right kind of soil and a protected situation the beets will take right hold and thrive. I think it would be an excellent investment to build cheap hotbeds or greenhouses expressly for early beets and nothing else. I think a good demand for them would spring up in almost any locality.

To be continued Oct. 15.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

THAT NEWLY DISCOVERED, NAMELESS BEE-DISEASE.

DON'T call it a new disease, for it may prove to be an old one. I first noticed it some three or four years ago in the summer time, among some bees I had recently purchased. I had lost most of my bees one cold winter, and bought 12 two-frame nucleus colonies, and used my old combs. I paid but little attention to it at first, thinking it was something temporary, and perhaps similar to what I had often noticed among bees late in autumn. It did not disappear; but the next spring and summer, and even since, that same kind of used-up fellows are to be found in front of a few hives. Perhaps the old combs had something to do with it. I have thought the trouble might be caused by some vegetable or animal parasite. Something has made the fur fly on them. I suppose a parasite might do this, or could not the bee get rid of the fur itself while scratching around to get relieved of the difficulty? The other bees also might have something to do about it, as they often drive them out as they do drones, only I never saw them trying to sting one. It does not spread very fast. I think it is slightly contagious, but not at all infectious. None of my swarms have been ruined by it, but it must be injurious to have a few dropping prematurely out of the ranks every day. I prefer to see them all wearing themselves out by gathering honey all *the day* long from "every opening flower."

Walpole, N. H., Aug. 23, 1886. J. L. HUBBARD.

I should judge from your description that you have something very near akin to the nameless bee-disease. We have generally cured that phase of the nameless disease which has visited our apiary by the introduction of a new queen. It would seem, however, that yours originated with the combs or brood.

RETURNING SWARMS.

On p. 623, GLEANINGS for Aug. 1, Mr. J. E. Pond, Jr., comments upon my article in regard to returning swarms. He does not seem to understand whether my plan is to be used only in "accidental cases" or otherwise. I would suggest, that my plan be used only when swarms issue, no matter whether swarming be the *general rule* or the exception. Of course, my plan would not work *very well* if *no swarms issued;* and if swarming be *entirely prevented,* there would be no swarms to return. Now, I do not claim that returning swarms will give the largest yield of honey, or that the bees will do better otherwise by being returned. It is simply a plan to return swarms to the parent stock. I think, though, they will do as well returned as when drone and queen traps are used to prevent swarming. Mr. Pond has not read the article correctly. He speaks about the trouble of watching to see which hive the bees issued from. The beauty of my plan is, that it is *not* necessary to know which hive the swarm came from. The queens being removed, the bees will return to their own hive, even if swarms unite, as they generally will when they issue at the same time, and you do not have to watch your apiary any more than usual. I have returned swarms all summer, and no not know of an instance where they went into any other hive than their own.

DRONE-EXCLUDERS.

Queen and drone traps can not always be used. Young queens and drones must fly out. They can not be confined to the hives. It will not do to depend too much on drone-traps, and I will suggest how they might fail to prevent swarming. They will keep in the queen, but not the bees. We will suppose the swarming fever has broken out in a colony, and that a swarm from a neighboring apiary should come by. The bees would probably unite with this swarm, leaving their queen in the trap. CHAS. A. WOOD.

Tarrytown, N. Y., Sept., 1886.

We agree with you in regard to the queen-trap. It is not calculated to *prevent* swarming, strictly speaking, though it may discourage it, but to automatically *catch* the queen when the swarm does issue. This accomplishes the same result as clipping the queen's wing; but with the trap the apiarist is saved the trouble of catching the queen. Moreover, all her fair proportions are preserved.—It is true, if the trap is allowed to remain attached to the hive, the bees, after making several attempts to swarm, taking with them the queen, will by and by become disgusted with her majesty. The probable outcome will then result in her death. In the A B C of Bee Culture, now under revision, I caution beginners in regard to this very particular.

KEEPING HONEY.

Now that the season is about over for producing, how to keep it is next in order. Sulphur fumes have been relied on, but it does not destroy the egg of the moth; besides, it renders the honey unsalable for several days on account of the disagreeable odor. But to look the honey over every week, waiting for cold weather to kill the moth, is a tedious job, if you have a ton or two. Please tell us the latest new idea on the subject. Is tiering up and leaving it on the hive till October a good plan? or will the bees uncap and carry it down stairs to feed the kids? W. H. RITTER.

North Springfield, Mo., Aug. 1, 1886.

The latest idea on the subject, friend R., is, so far as I know, keeping Italian bees. With these we have not seen a moth-worm in our honey for the last two or three years. You may remember that Doolittle gives a similar experience. I certainly would not go to the trouble of fumigating comb honey until I saw traces of the moth-worm in the comb. Where comb honey contains pollen I believe there is a much greater tendency to moth-worms. I would not leave honey on the hives at all until October, because it is certain to darken it so as to injure the sale of it more or less.

EXCHANGING COLONIES TO STOP ROBBING, AS RECOMMENDED IN THE A B C OF BEE CULTURE.

In 1885 I had a swarm come off on the 4th of July. It was a small one, but I fed it and brought it through the winter; and after I got the A B C I determined to do away with all my old hives, or boxes, and use only Simplicity and chaff, after your pattern. I transferred about the first of May into my hives. Well, I found that my July swarm had lost its queen, and the other bees were robbing it in the bargain. I ordered an albino queen; and on May 11th, after trying every thing else, I could not get ahead of the robbers; so I tried dealing on the rogue plan. I moved the colony, that was doing the most robbing, from its stand, and placed the July swarm in its place; and I found that it was not long until I had a good working colony, and they filled the first story of the Simplicity; and on the 11th of this month they threw out a very large swarm. I then examined the albinos, and found that they had 5 queen-cells on hand. Now, what I want to know is, How am I to deal with those 5 cells? as I shall like to save the queens if I can, and introduce them into some black colonies that I have; and I know that, if left to themselves, they will be destroyed, or possibly swarm out, as it is too late for that kind of business. I think that, by feeding the swarm that came off on the 11th, I may be able to carry it over the winter; they are doing good work. I put them on fdn., and they are drawing it out very fast, and gathering very fast.

I am clerking in a store in this place; and at night, after working-hours, I have made 5 chaff hives and 4 Simplicities; and this winter I expect to make more of the chaff for next season.

A. L. LANE.

Duncannon, Perry Co., Pa., Aug. 18, 1886.

Friend L., there is no way you can utilize queen-cells unless you have queenless colonies to receive them. A lamp nursery would receive them, it is true; but you would be in just as much need of queens to receive the hatched queens as you were before. It does not need, however, a whole colony of bees to take care of a queen-cell until the queen begins to lay, and herein is the saving of utilizing nuclei. One of your black colonies should have been divided into two or more parts a few days before queen-cells were ready to be removed.

BEES VERSUS FRUIT.

Mr. A. Cameron, on page 619, has suggested a grand idea. In his defence of bees, No. 2, it should say, "Without bees or *other insects*, many kinds of bloom would not bear," etc.

In No. 3, he says they do suck the juice from *all* broken fruit. The word *all* should not be used, as there are many kinds of fruits they do not work on.

There is some ignoramous prejudice working up against me, that my bees work on apple-bloom so that our trees do not bear enough apples. Nevertheless I have nearly 60 acres of standard orchard, and a general nursery stock for sale, besides the orchard. How inconsistant, that I would go to the expense of raising a large apple-orchard, then keep a lot of bees to hinder it from producing me an income! Send me a sample of Mr. Cameron's hints, as soon as printed. E. LISTON.

Virgil City, Cedar Co., Mo., Aug. 5, 1886.

FEEDING MILK DURING A DROUGHT; HOW BEES LIKE IT.

You wish to know if any one has tried feeding milk during a drought. Yes; and I will give you my method of doing so. I take new milk, direct from the cows, boil it a little, which makes the clot rise to the top. I skim this off and add a teacupful of sugar to a quart of milk; but sometimes I do not put in any sugar at all, and the bees seem to take it "straight," just as well after once getting started. Boiling prevents souring, and coagulates the excess of fatty matters, which are indigestible, and are best removed.

HOW TO FEED.

I made some boards, as described in the A B C, for giving water to bees, and inverted glass fruit-jars of milk on them. Is it a success? Yes. I have a lot of young Yorkshire pigs, and it is hard to tell which acts most like a hog, the bees or the pigs.

The drought continues, and for severity it has not been equaled for 35 years, says the "oldest inhabitant." During the early spring, honey was abundant; but making swarms and nuclei it was speedily used up, and I have been feeding since July 1st, and I have not taken a pound of honey this season. The honey-dew never failed us before in a dry season; but this year it is a total failure with every thing. H. W. PALLIES.

Mehama, Marion Co., Oregon, Aug 10, 1886.

BEES GOING DOWN A STOVE-PIPE FROM WHICH SMOKE WAS ISSUING.

A few days ago I was baking a pie which I had sweetened with honey. Our oven was defective, so that a draft went directly through it. In a little time I saw bees coming down the pipe and escaping half dead, through a little opening on top of the oven. I went out and found that a lot of bees were darting into the smoke, while now and then one found its way into the pipe. That pie was expensive, as I think 200 bees perished before it was baked. As soon as I took the pie out of the oven the bees ceased "fighting with the pipe," Perhaps you would do well to ask some of your readers if the above is not the real secret of bees fighting with stove-pipes. MRS. JAS. FENNELL.

Shelburne, Ont , Canada, Aug. 18, 1886.

HONEY TO BE NAMED.

I send you this day a small bottle of something my bees have been gathering, principally through July. I think it will kill the bees next winter. Is it honey-dew? 47—E. B. SMITH, 70.

New Milford, Susq. Co., Pa., Aug. 30, 1886.

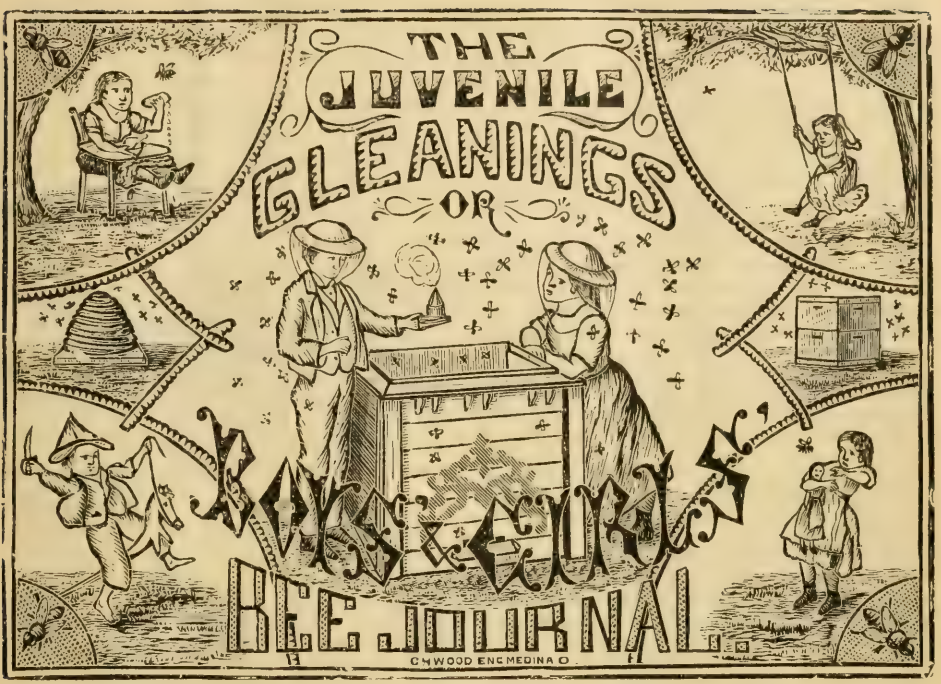
Friend S., I do not think the sample you send is honey-dew, nor do I think it will kill the bees. The color is pretty fair, and the flavor comes, it seems to me, the nearest to the wild sunflower, growing in swamps, of any thing I know of. Have you not a swamp, within a radius of a mile or so of your apiary, that was covered with yellow blossoms when the bees were gathering this honey?

IS HONEY-DEW THE CAUSE OF THE NAMELESS BEE-DISEASE?

In GLEANINGS, August 15, page 644, H. D. Mason mentions that new bee-disease. I think it is certainly caused by honey-dew. By removing combs containing said honey, I can see no trace of it. I have one frame of honey I think would start it in any colony that it was given to. You can have it to experiment with, if you wish. SAMUEL HEATH.

Rimer, Pa., August 24, 1886.

No doubt, friend H., the honey you have affects the bees so as to make them resemble those having the nameless bee-disease; but as we have seen it so many times when no honey-dew was being gathered, I am quite sure that honey-dew is not always the cause of the trouble. We do not care for any samples that will make bees sick. Thanks for your kind offer, however.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

THE OHIO STATE FAIR AT COLUMBUS; A GOOD DISPLAY OF HONEY, ETC.

IT seemed almost impossible this year that I could visit the State Fair at all; but perhaps it may be worth something to you to know how much can be done in a short time. The finishing of our new factory, putting in the new machinery, etc., requires my presence almost constantly; but the workmen finally concluded I could be away one day, without making very much trouble. Accordingly, Neighbor H. and I figured up that, by making a very early start in the morning, we could strike the train at a station about 16 miles distant, so we could reach Columbus about one o'clock in the afternoon. To get home that same night, we were obliged to take the train again at 5 P.M., and make another buggy-ride across the country, between the small hours of 11 and 1 o'clock at night, giving us just four hours on the fairgrounds. Well, we planned every thing so that nothing should interrupt us during these four hours. We took a lunch on the cars, so as to be ready to go through the grounds with a rush; and I confess I rather enjoyed my hasty visit. Our new fairgrounds, near the Experimental Farm, are a wonder. Forty-one beautiful spacious buildings contain the exhibits, farm stock, etc., and the architectural beauty of these buildings was, to me, simply a wonder. They cost a pile of money, it is true; but I think the State of Ohio can well afford such an investment for the encouragement of her rural industries. Of course, they don't have any beer on the Ohio Fairgrounds, and the railroad companies have helped to manage the thing so that the beer-men have not been able to get a saloon very near the entrance. The saloons were fewer in number, and smaller in dimensions, than they were a year ago, and it really looks as if they were going to get ashamed of themselves, and vanish from the presence and sight of an intelligent Christian people.

The honey display was finer than any thing I had ever before seen in the State of Ohio. I would call especial attention to the display of both comb and extracted honey by Mr. W. S. Goodrich, of Worthington, Franklin Co., Ohio. The display was very large, and the honey had a crystal clearness that astonished everybody.

"Friend G.," said I, "I suppose this is, of course, clover honey; but how do you account for its beautiful light color and transparency?"

"Why, Mr. Root," replied he, "if I have made no mistake, this whole crop of honey is from *alsike clover*. The drought was so bad that white clover was almost used up, and I am afraid I should have had no honey-crop at all had it not been for my eight acres of alsike."

I give this for the encouragement of those who are thinking of raising alsike as a forage and honey plant. We have had abundant evidence of its worth for hay for milch cows, and now it seems as if it would really pay to raise it for honey alone.

Our good friend Mrs. Jennie Culp was

moving about among the bee-men and bee-women, and she laughingly told me she had *200 gallons* of beautiful clover honey this season. She had it stored in stone crocks, and the crocks were making her a deal of trouble by bursting open as the honey begins to candy. Did you ever hear of such a thing?

Mr. Earl Flickinger also made a very fine display; and one thing that pleased me about his exhibit was, that his good wife stayed behind the railing, and answered questions and explained things.

Our old friend Aaron Benedict was a little in the background, talking bees to people who were curious, while a swarm of nicely marked Italians hung from his whiskers.

One pleasant part of it to me was, that the comb honey was stored in sections of our make, and the sections were mostly neatly incased in bright new cases of our make. Much of the liquid honey also was exhibited in jars, pails, and tumblers bought from our establishment.

I have not space here to tell of the many kind friends whom I met, and who seemed rejoiced to see me, even for only four hours. Have I any *right* to let business keep me away from seeing these *neighbors* at least once a year — these *Ohio* neighbors of mine? A bevy of ladies expressed a desire to shake hands with the editor of Gleanings; and after we had had a pleasant talk, one of them made a remark that carries with it something of a moral. She said, in substance, "Mr. Root, much as we prize Gleanings, I am ashamed to tell you that we carelessly omitted to renew our subscription, and we are not having it this year at all. It was allowed to stop through pure neglect."

In the last *Prairie Farmer*, Orange Judd speaks of meeting old friends in the Far West, during his travels, and he says he met hundreds of people who said the same thing about letting the *American Agriculturist* drop when he was editor. They really valued the paper, and had no idea of letting it stop coming; but it was put off, month after month, and finally they didn't have it "at all any more." Now, I didn't feel like urging these good friends of mine to hand me a dollar just then and there, under the circumstances, that I might send them our journal again; but it occurred to me that the proper way was to have some friend of Gleanings go over every neighborhood, take the money and forward the names; and, of course, the one who does this ought to have pay for it. Accordingly, we furnish Gleanings to such an agent for only 75 cents each; that is, for collecting the names of all those who would be likely to subscribe at *your postoffice*. The supply-dealer of the neighborhood would be, obviously, the party to do this. How shall we get this started? Well, now, dear friends, I do not know any better way than to ask you to agree among yourselves who shall be the agent at your postoffice, and let him look up all the parties who really want Gleanings, but don't like to write a letter, etc. One-fourth of the amount of money received would, I think, pay well for the trouble of visiting them in their homes, and making a neighborly call.

At our Abbeyville Sunday-school, a few weeks ago, the attendance during the hot weather got down to as low as 17, I think. I gave the children a little talk, and asked them how many would really try to bring somebody else to Sunday-school the next Sabbath, in order to keep our school from "dwindling" — not from *spring* dwindling, but from *mid-summer* dwindling. Up went a lot of hands, and I knew by the smiling faces that the work would be done. Next Sunday our seventeen had increased to *forty*. Now, friends, I do not often urge you to help to increase the subscription-list of Gleanings; but the larger the list, the more money can we afford to expend in engravings, and in traveling to hunt up valuable facts for you. Besides helping your paper, you will get better acquainted with *your* "neighbors" by going round among them in the way I suggest; and what is there more more important in this world than pleasant relations between "*ourselves* and our *neighbors*"?

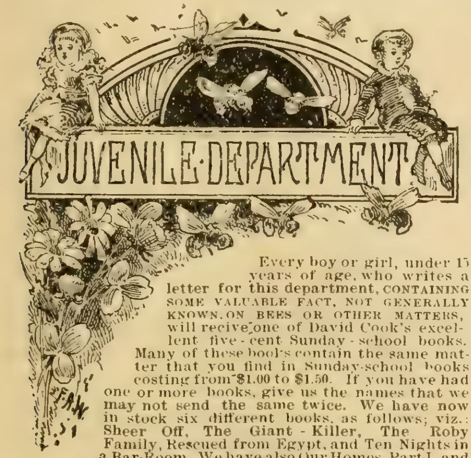
FULL SHEETS OF FOUNDATION, VERSUS STARTERS, FOR BROOD-COMBS.

EXPERIMENTS IN REGARD TO THE SAME, AS REPORTED BY A JUVENILE.

We got only 302 lbs. of comb honey, and increased from 34 to 53. We followed Mr. Hutchinson's plan in hiving 16 swarms; viz., on five empty frames with narrow starters, a queen-excluding honey-board, and a case of 28 sections filled with foundation. We should have had better results if the season had been good. All the swarms went at once to work in the sections, and the combs in the brood-chambers are nice and straight. Nos. 7, 11, 14, and 16, had no drone-comb. Nos. 2, 5, 10, 12, 13, and 15, had each from three to six inches square of drone-comb. No. 3 had nearly all drone-comb; lost their queen, and had fertile workers. Nos. 4 and 8 had each about one-half of drone. Nos. 1, 6, and 9, had each nearly one whole frame of drone-comb. We don't know the age of the queens. Papa wishes some way could be found out to prevent the bees from building so much drone-comb. Would drone-fdn. in the sections prevent it? Cora Major.

Cokeville, Pa., Sept., 1886.

The report of your experiments is valuable indeed, as it is just the point at this time we are all eager to know. Your experiments seem quite favorable to friend Hutchinson's position of the limited or nonuse of foundation in the brood-chamber. Still, from results as above recorded, I think I should prefer full sheets of foundation, unless something can be done to exclude, or at least more nearly exclude, the drone-comb. Perhaps the difference in treatment of the several colonies might obviate the difficulty. Well, supposing we can obviate said difficulty, how are we to prove that the exclusion or partial exclusion of foundation in the brood-chamber will be any cheaper than full sheets of foundation, since able experimenters disagree so widely as to the original cost of wax, as adduced from the consumption of honey. The result of your experiments is so carefully given, friend Cora, that we will send you any thing you may choose, from the 25-cent counter. If any of the other juveniles can report upon the above question, we will do as well by them. In regard to your last question, I should be inclined to believe that the use of drone-fdn. in the super would make little if any difference in the amount of drone-comb built below, though I can not say from experiment. Perhaps friend Hutchinson can clear up some of these things. ERNEST.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will recive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

> "A chiel's amang ye takin' notes,
> An' faith, he'll prent it."

THE LANGUAGE OF BEES; A TALK TO THE LITTLE FOLKS ON BEE-TALKS AND "OLD HEN" TALKS.

I HAVE been telling you something of the way in which bees talk; but bees are not the only dumb friends (if, indeed, I may call them dumb) that have their way of talking. Did you ever hear your old biddy sing? It is true, she does not make very much music, but she is happy—yes, happy as a bee when he sings forth his notes of rejoicing while in the clover-fields. Old biddies not only sing, but scold. I dare say you have tried to put your hand under an old sitting hen. What does she say? Something to this effect: "If you don't get away right off I will—well, peck." How her eyes do snap, and her cluck, cluck, has no uncertain sound. That big old rooster, so big and so proud, how he does strut, worse than Johnnie when in his first pair of pants! and as he mounts the fence he crows forth his challenge to all the other roosters, "I am monarch of all I survey." When one of your nice biddies comes off the nest just after laying an egg, what does she say? "*Cut, cut, cut, cut, ka-dar, cut;*" or, in our kind of talk, "Look, look, look, look what *I* did." Another hen, a little jealous, perhaps, replies, "*Cut, cut, ka-dar, cut,*" or, "Well, well, what of it?" The old rooster, if he feels like it, thereupon claps his wings and—"*Cock-a-doo-dle-do!*" or, "What great things *we* can do-o-oo!" Perhaps your mamma may think I am a little fanciful. Well, perhaps I am in this last; but I think we will all agree that our old biddies can talk, and that right plain. For instance, the mother of a brood of chickens, on seeing a large bird or hawk fly over, utters a shrill cry, at which the chicks may be seen to skulk off. When the old hen espies a mouse or snake in the grass, she will utter a different note. The chicks, instead of hiding in the grass, will stretch their little necks to see where the danger is. When the old biddy finds a choice morsel of food, she calls the chicks to her. It has been estimated by a prominent writer on poultry, that chickens have as many as twenty different signals, or ways of talking to each other. Little folks, can you understand all these signals? Did you ever see how an old rooster talks to his hens? It is real funny. As I have told you, bees have their signs—or, if you please, their language, by which they can express all their little wants, needful for their purpose. The rooster crows, the hen cackles, the queen-bee zeeps; the bee, by the peculiar behavior of his wings and body, gives signals, each of which is intended for a purpose, and which is understood by his kind. God has kindly made all his creatures to know and understand each other.

Now, little folks, I want you to watch and study the actions of bees and chickens, or of any of God's creatures. Learn how they talk to each other, and tell us about it in GLEANINGS. You will then see how *well* God has done his work. ERNEST.

HOW A HORSE WAS SAVED FROM BEING STUNG TO DEATH.

Last spring pa had a horse plowing in the garden, near a hive of bees on the opposite side of the fence, and all at once they almost covered the horse, Charley, and nearly stung him to death. Pa took one pound of soda and dissolved it in water and rubbed him well with it, and in a short time he seemed to be easy. The horse is well now, and as fat as a butter-ball. Pa has 26 colonies of bees and 17 Simplicity hives. This has been a bad season for honey, as it has rained nearly all summer.

Shubuta, Miss. BELL LOCKETT.

A friend two miles distant had his horses stung so badly that he feared they would die. He did nothing for the horses and they got well. ERNEST.

MAKING A BEE-HOUSE BEE-PROOF.

Pa has 30 colonies. He had but one swarm this year. The bees did not do as well in the spring. When the peach-bloom was just opening there came a snow and killed the blossoms. But they are gathering honey off the cotton bloom. Pa has a bee-house, on the inside of which he has pasted paper all over to make it bee-proof. He has a wire door that shuts on the inside, and a wooden one on the outside. When he wants to extract his honey he gets inside and opens the wooden door and shuts the wire door. Pa likes your journal. I like to read it too. ELIZA MARTIN, age 10.

Mark, Sebastian Co., Ark., Aug. 18, 1886.

THOMAS HORN.

Pa had eight colonies of black bees, and he did not winter them. He lost them all, so my three brothers sent for a colony of Italian bees to Thomas Horn. They say they are better workers than the blacks. Pa says it is the best colony we ever had, and he thinks Thomas Horn is an honest man. Pa never heard of such a thing as horned toads, and he would like to know what they are. He says he thinks they are not the kind that we have around here, for he thinks Mr. Root would not keep them in his apiary, for they eat bees.

LENA ZEHR, age 13.

Indian River, Lewis Co., N. Y., Aug. 8, 1886.

Thank you. We are very glad to hear a good word for Thomas Horn; but so many complain of him as dishonest that we warn our friends against purchasing of him. Your logical connection, as the big folks say, between Thomas Horn and "horned toads" is rather abrupt, is it not? However, we have had only one horned toad in our apiary, and that simply as a curiosity. I can not say as to whether they would do much if any harm in larger numbers.

ONE QUEEN SWARMING SEVEN TIMES.

Papa has a queen that has swarmed seven times this summer. He has 32 hives. My brother has a hive of bees, and he likes to go out and look in the hive. Sometimes I go out and help papa when he has a swarm. Papa bought a dollar queen of you last year, and it swarmed and went to the woods 18 days after. He bought another this spring, and it swarmed three times, but died in front of the hive the last time. The kind of shade-boards we like best are made out of old barrel-staves. We use two pickets to rest on the hives, and nail the staves on them. We make two out of one barrel. MAMIE G. STOW, age 10.

South Evanston, Cook Co., Ill., Aug. 29, 1886.

Well, Mamie, if I had a queen that had swarmed seven times, and should give promise of doing as bad or worse next season, I would—well, kill her and put one in her place that would "stay at home" better. It doesn't pay to fuss with such queens, if their everlasting inclination to swarm can not be stopped by some reasonable means, such as more room, more shade, or better ventilation. ERNEST.

WHEN A SWARM ISSUES, DOES THE QUEEN ALIGHT FIRST?

When a swarm issues, does the queen generally alight first, or the bees? You will notice on page 302, May GLEANINGS, Mr. Brayman said he lay by the hive watching for the queen, while his wife watched where they were going to cluster; so I take it from that, that the bees commence to cluster before the queen.

GRAHAM S. DEWITT, age 11.

Homowack, Ulster Co., N. Y.

My young friend, I think that the bees, as a rule, alight first, and the queen when a part of them have commenced to cluster—at least I have watched quite a number of swarms while clustering; and when I have been able to get my eye on a queen it is, as a rule, when they are about half clustered. Young queens are especially apt to be running out of and in the cluster, taking wing, and then coming back again.

13,000 LBS. OF HONEY FROM 200 COLONIES; HOW TO MAKE A HARVEST DRINK OF HONEY.

Pa has over 200 colonies of bees. He has extracted over 13,000 pounds from them this season. It has been very dry weather here for quite a while, and the white clover has nearly all dried up. I will tell you a way of making a drink that is better than to drink so much cold water on these warm days. Take 1½ teacupfuls of honey; ⅔ of a cup of vinegar, and one heaping teaspoonful of ginger, to a gallon of water. We call it "ginger ale." Pa's bees are not gathering much honey now.

GRACE POPPLETON, age 14.

Williamstown, Iowa, July, 1886.

Well done, Grace. Your home-made ginger ale, I should think, would be tiptop; but isn't half a teacupful of honey to a gallon of water making it pretty sweet? When one is tired and thirsty, some sort of a drink with sweetening in it will give strength and energy almost immediately, as I know by abundant experience; and the ginger seems to have the effect of making the drink "set well," to use a common expression. If our summer beverages never have any thing in them more dangerous than vinegar and ginger, I think we shall all be on pretty safe ground.

LOOKOUT MOUNTAIN, AGAIN; THE EFFECT OF THE DIFFERENCE IN ELEVATION UPON THE LENGTH OF THE HONEY-FLOW.

You ask in GLEANINGS if the honey season was prolonged on account of the elevation. Our experience is the same as the writer who mentioned that subject before. The clover and other honey-plants come in 14 days earlier in Chattanooga Valley than up here. This mountain is 1800 feet above the valley. Our bees have swarmed three times since I wrote to you June 20th, and we have now 14 swarms of pure Italian bees. They have taken a great deal of honey from the sourwood, and are now very busy on the wild-flowers. There have been two great battles fought on this mountain—one on the 28th day of October, 1863, in which action Gen. Joseph Hooker gained the mountain; and on the 23d day of November, 1863, the Union troops under Generals Hooker, Thomas, and Sherman, drove the Confederate troops under Gen. Bragg off the mountain. The last action was the fierce "Battle above the Clouds." Many marks of this battle remain in the shape of forts, camp-chimneys, rifle-pits, and breastworks. A line of breastworks extends along the northern side of our apiary, and form a windbreak for it. I live at Point Lookout. There are hundreds of people visiting it every month. There are many points of interest on the mountain, among which are Lookout Cave, Point Lookout, Natural Bridge, Rock City, Lake Seclusion, Lulu Falls, and Eagle Rock. The air is very light and healthful.

GEORGE LAWSON.

Lookout Mountain, Hamilton Co., Tenn.

Thanks for your description of Lookout Mountain, so famed in the history of the late civil war. The natural scenery, together with the remnants of that remarkable conflict, fills me with a desire to visit that place at some future time. ERNEST.

MAKING PRESERVES WITH HONEY; HOW A SEVEN-YEAR-OLD HELPS PA.

Pa has taken GLEANINGS for years, and I like to read the little children's letters. Pa has 40 hives of bees. I help extract. I carry the honey to and from the extractor. Ma uncaps, and pa takes the frames out and brushes off the bees. Pa made a solar wax-extractor, and it works well. Ma made blackberry and apple preserves with honey, and we like them. We like the apple preserves better than if they had been made with honey, and it is good enough for a wedding-cake. We can not tell it from sugar-cake. **ALLIE SHUMARD**, age 7.

Panacea, Mo., Aug. 4, 1886.

Thank you, little Allie. We like to hear of all the different uses to which honey can be put.—When I was seven years old I was "afraid of bees," and my pa could hardly persuade me to help him to extract. What a coward I was, wasn't I? **ERNEST.**

HOW TO MAKE A QUEEN-CAGE, AS DESCRIBED BY A JUVENILE.

This is my first letter. I caught a bee and pulled its sting out. It lived 29 hours and 32 minutes. To make a cheap queen-cage, take a block of wood 1½ inches high, 1¼ inches wide, and 2 inches long. With an inch auger, bore a hole close to one end (on the 1¼ side of the block) 1¼ inches deep. Take a ½-inch auger, bore from the other end until you strike the other hole. Tack a piece of wire cloth over the large hole. Take a thin piece of wood, bore a small hole in it, place it on top of the wire; fill the ½-inch hole up with candy, and place a plug at the end. **VIRGIL H. MOATS**, age 13.

The Bend, Defiance Co., Ohio.

Your description of how to make a queen-cage is pretty well done, Virgil, and I think we can "catch on." The cage is something on the plan of the Benton cage. **ERNEST.**

TOBACCO COLUMN.

THE FRUITS OF THE TOBACCO COLUMN.

WELL, Brother Root, I have not forgotten you, although I have not thanked you for the smoker you sent me last year. I am very much obliged. I have kept my resolution so far. It has been over a year since I quit the use of tobacco, and I have had no appetite for it; and by the help of my Lord and Master I never shall use the vile stuff again.

We have had a very dry season—the dryest I ever saw. Every thing is dried up. We shall have but little hay and oats. Bees have done poorly. They have swarmed but very little. If we do not have rain soon I shall have to feed for winter. Buckwheat that was sown 3 weeks ago is not up yet. We had a little shower to-day that may bring it up. Basswood did not bloom at all this year. I feel almost discouraged, but I put my trust in Him who is able to help us in every time of need.

Orono, Mich., July 13, 1886. **L. REED.**

Seeing your generous offer in GLEANINGS to those who give up the use of tobacco, I have joined the throng that claim the reward (the smoker). If I ever resume, I agree to pay double price for the smoker. I used the weed for over six years.

LEVI E. MALLERNEE,

Cerro Gordo, Ills., July 5, 1886.

Please send to Elmer Divens, Good Hope, Fayette Co., O., one bee-smoker, for quitting the use of tobacco. He agrees to pay cash if he fails.

Good Hope, O., June 23, 1886. **B. R. PAXSON.**

A BROKEN PLEDGE, BUT PAYS UP.

Charge me with 50 cents for a smoker on tobacco pledge for my brother, as he has broken his pledge.

Arcadia, Kan., July 8, 1886. **S. C. FREDERICK.**

I have quit the use of tobacco. If you will send me a smoker, and I ever use tobacco again, I will pay you for the smoker. Bees are doing better than ever before. **W. J. HESTER.**

Eureka Springs, Ark., July 2, 1886.

I am an old tobacco-user, and by reading the Tobacco Column I have resolved to quit; and as sure as ever I resume, which I pray I never shall, I will send the price of the smoker. **J. C. SLOCUM.**

French Grove, Ill., June 25, 1886.

Some neighbors of mine to whom I read GLEANINGS regularly, and who feel great interest in bees, and who are bee-men in the old-fashioned way, have, by my wish, and through my persuasion, forsaken the use of tobacco for more than one year now. They have given me their word never to smoke or chew again. Please send them a smoker each; and if they break faith I will pay for them.

FELIX W. O. SCHMIDEL.

Fort Ogden, Fla., June 15, 1886.

INDUCES A FRIEND TO QUIT; ALSO A KIND WORD.

I received the goods the 25th of May in good order. I am well pleased with my frames. I have the 300 frames nearly full of comb and honey. I never saw such a honey season as this, in all of the 17 years of my bee-keeping. There is a young bee-keeper here whom I induced to stop using tobacco. I told him if he would never use it again you would send him a smoker. Will you please send him one? I will pay for it if he uses tobacco again.

GLEANINGS is the best of all the papers I am taking, and I take eight different ones. Our Homes is my best reading. I hope, friend Root, you will have a long and happy life. May God bless all your teachings. **JOSEPH SOPH.**

New Haven, Mo., June 26, 1886.

HEALTH IMPROVED.

I have used tobacco since I was five years old, and I don't know when I did commence the use of the weed. I used it the day I started to school, and, feeling it to be a sin against God, and knowing it in no way prepared me to live a holy life, or to serve God in any way, by his grace I have quit it, and am in better health than I have been in for twenty years, and I enjoy more of the presence and fullness of our blessed Lord; so if you have determined to contribute a smoker to every one who quits, you can sell the smoker and invest the amount in religious tracts, and distribute them for the good of humanity and glory of God; and should I use it again I will let you know, and pay you double price for the smoker. **L. W. MILAM.**

Prescott, Ark., June 19, 1886.

Friend M., I have heard it said, that in the Southern States it was customary for school children to use tobacco; but I did not know before that they ever commenced it at so early an age as five years. Thank you for your kind and encouraging words.

I understand you will give a smoker to all who will quit the use of tobacco. I will abandon the use of it if you will send me one. I give you my promise to pay for the smoker if I ever use the weed again.
Lonegum, Va. T. A. Wood.

I see you give a smoker to all who will give up tobacco. I promise to stop; and if you send me one, and I should break my promise, I will send you the money for it. Vischer Whipple.
Porter's Corners, Saratoga Co., N. Y., July, 1886.

My brother says you give any one who quits tobacco a smoker. I used it fourteen years. If you think I am entitled to a smoker, send it; and if I ever commence I will own up and pay for smoker.
Oak Bower, Ga., June 29, 1886. A. H. Vickery.

I used tobacco a great while, but have stopped it. A friend told me that you would send a smoker free to any one who would give up the use of tobacco. If you will send me one I will never use another speck; but if I do I will pay the full price of the smoker. Frank A. Padgett.
Jacksonville, Ill.

HAS USED TOBACCO 55 YEARS, AND NOW QUITS.

I see much in Gleanings about your giving a smoker to those who quit the use of tobacco; but as I do not use nor ever have used it, I can not stop the use of it. But my grandfather, who began its use when four years old, and has kept it up for 55 years, has at last quit, and he is now fairly angry whenever he sees anybody using it. He said that I should ask you for a smoker; and if he ever uses the vile stuff again, and does not pay for it, I will. A. H. Abel.
Ironia, N. J.

I found a notice, stating that you would give a smoker to any one who had quit the use of tobacco. I think that I am entitled to the smoker, for I have been a habitual chewer and smoker. I used one pound of the best fine-cut in 15 days, and smoked about the same amount of smoking-tobacco, and occasionally a cigar. It has been some time since I quit; and if you see fit to send the smoker to my address, I agree to give you $1.00 for it if I ever use tobacco again. I have 18 swarms of bees, and they are doing quite well, although it has been very dry here this summer. I am much interested in bee culture. I handle my bees without any protection whatever. R. H. Peet.
Hebron, Pa.

My brother-in-law does not think you are reliable; and when I told him what was on the card I had just received, and asked for the promise in his own handwriting, as you asked for, he said something about like this: "He will never send it; you and he will keep writing to one another until you pay out more than it is worth. You are out 20 cents now, and I don't believe you can get him to send it, if I were to write the promise to him. I wouldn't fool about it any it any longer. I should like to have the smoker, and would consider it as a reward, but you'll never get it for me in that way" (this last rather positively). "If he sends it, though, I will stick to my promise. There has been a month's delay, and I believe I will buy one." And off he went about his work. Now, Mr. Root, I don't blame you for wanting things fixed exactly, "so there is no creeping-hole;" and if you are minded to publish this, and send him a smoker, you can do so.
Clear Creek, Ind. A. H. Tering, Jr.

You say, if I quit on account of your offer, etc. I was persuaded through Gleanings to quit. I quit because it was right, and tobacco is injurious to my health, and not for money; but I was influenced by you to quit. H. S. Collins.
Mayville, Mich.

A friend of mine quit the use of tobacco in order to get a smoker. He has not used it for 3 months, and says if he uses it he will pay you $1.00 for the smoker, and I will give him the extra one I got of you if you will give me a new one. A. L. Light.
Grove Land, Ark.

I received the queen all right. I did not know there was any such promise required for the smoker; but I will promise to pay for it if father begins the use of tobacco again. I also indorse the promise. C. M. Kellogg.
Dallas, Wisconsin.

KIND WORDS FROM OUR CUSTOMERS.

I received the A B C book all right, and like it. I don't see how you can sell such a book so cheap as you do. H. S. Payne.
Richmond Corner, Me.

THAT FOUNDATION.

The comb foundation was received all right. Thanks for prompt shipment. It is nice foundation. The cells are deep, and it is altogether good, better by far than that I used before (flat-bottom).
Carlstadt, N. J., Aug. 20, 1886. F. Holtke.

[See article on p. 728 in regard to flat-bottomed fdn.]

A DOLLAR WELL INVESTED.

The A B C book I got of you is a handsome prize, and I think it is just "immense" pleasure to peruse its well-printed pages. One of my friends said that the dollar I paid for it was the best invested that he ever knew a dollar to be in printed matter. A. H. Abel.
Ironia, Morris Co., N. J., June 16, 1886.

OUR WHEELBARROW FOR BEE-KEEPERS, AND WHAT A PRACTICAL BEE-KEEPER THINKS OF IT.

The wheelbarrow ordered from you on the 1st arrived on the 4th, and I must say that it is far ahead of any thing I have ever seen in the shape of a light wheelbarrow, even at a much higher price. It is both strong and light, and I should say durable, and just what a bee-keeper needs. I have thought for some time that I would have a light spring wheelbarrow made, but could not get one up for much less than $10.00, while this one at $4.50 entirely fills the bill. You are certainly to be commended for placing such a convenient article within such easy reach of bee-keepers and the public generally.
Wyoming, N. Y., Sept. 6, 1886. G. W. Stanley.

[Many thanks, friend S. We feel assured that the bee-keeper's wheelbarrow will stand all you say.]

HOW GLEANINGS PLEASES.

Inclosed find $1.00 in payment of renewal of my subscription to your valuable and by me much-prized Gleanings for the ensuing year. It has been an ever-repeated pleasure to me, and I have profited greatly by its plain and comprehensive articles, and always waited for the arrival of each successive number with almost impatient interest to see what treat you would give us in the next, and it never failed to satisfy my expectations. It is really one of the pleasures and delicacies of bee-keeping, if I may so express myself, having so many different subjects on occurrences in life, and how to take and overcome them, as well as talks and suggestions regarding neighbors, household, and family, blended together in so pleasing a manner that I like it all the more. And now wishing Gleanings and its staff of editors and co-workers success in their noble work, I am your friend,
Newark, N. J. Chas. H. Theberath.

[Many thanks for your very, very kind words, friend Theberath. It does us a "heap of good" to feel that our efforts are not only appreciated, but are bearing a little fruit for the Master.]

OUR HOMES.

Have the gates of death been opened unto thee? or hast thou seen the doors of the shadow of death?—JOB 38:17.

I PRESUME most of the friends have gone over the accounts of the events of the recent earthquake, and doubtless quite a few of the readers of GLEANINGS have had more or less personal experience of this event that has aroused the attention of every thinking man and woman of our land. Perhaps more than one earnest Christian has felt troubled, at times almost lost, in the effort of trying to comprehend why the loving heavenly Father should permit such disasters to occur; and I may as well confess to you frankly, dear readers, that I feel at the outset that it is a task far beyond my capacity or capabilities, to even *attempt* to handle the subject. May God in his infinite love and wisdom bless and direct my feeble words.

In considering the matter, and in reading it up that I might be able to talk to you in regard to it, I have felt my comparative insignificance as I perhaps never felt it before. A few days ago Huber and I were sitting hand in hand, watching the setting sun. He turned to me and asked in his childish way:

"Where does the sun *go*, papa?"

Now, do you wonder that I did not answer him immediately? I do not know but that he repeated his question two or three times before I felt able to give him any kind of a rational or consistent answer. Should I tell him the sun didn't go at all, but that the world on which we live turns around toward it? This would be the only really truthful answer, in one sense; but it was beyond his comprehension; and, furthermore, do we really *know* that the great sun *is* standing still? The intelligence of the world made a great stride when it decided that it is the earth that is constantly moving, and not the sun; but who shall say what the next great stride may unfold? The opportunity was an excellent one for teaching my boy, and I would by no means pass by such a query unanswered; but I felt as many a parent has felt before, that my answer must be suited to the capacity of my pupil.

Did it ever strike you, my friend, how many times Jesus, in teaching his disciples, told them kindly and lovingly that they were not yet able to understand the things of which he spoke? Toward his approaching death he tried to teach them self-sacrifice, and that it were better for them that he should die the death of a malefactor. They seemed, however, so utterly incapable of grasping the great thought of atonement, that he stopped or decided not to go any further just then. He says, "Ye can not bear them now," giving them to understand, evidently, that the time would come when they could not only bear but understand these great truths. How true it was in the case of Peter! Contrast the man as he was during his evangelistic work, with what he was before he denied his Master, when he so stoutly insisted, that, though all men should turn away, he would not. Well, Huber will doubtless be able, some time, to be taught astronomy; but it would be folly to think of trying to explain much of it to him now. I spoke to him something like this: "My boy, the sun goes down behind the trees, clear out of sight; then in the morning this same old sun comes up back of the trees away over there. Don't you remember?"

"Oh! yes, papa; I know how it is now." And then he was full of childish prattle and other things. By and by I can teach him more of the movements of God's great luminaries, but not now.

Is it not so, my friends, in regard to earthquakes? God is teaching us by great lessons, sometimes by terrible lessons, and oftentimes we come to the boundary of human capacity and intelligence. We not only can not understand, but, what is of much greater moment, we can not *bear* to be *told* the things he would tell us. We look aghast at the thought of sudden death; and even some who profess to put their whole trust in Him who has but to speak, and the winds and the waves obey him, stand terrified with trembling faith as they behold the apparent confusion of the elements. Does God really have any thing to do with earthquakes? Most surely he does. They are part of his plans from the beginning; and before we reject the teachings of his holy word, and rebel against the laws of the all-wise Creator, suppose we consider a little this matter of life and death—that is, so far as we are able to consider it.

In our opening text, God reproves the murmurings and complaints of Job and his friends. "Have the gates of death been opened unto thee? or hast thou seen the doors of the shadow of death?" It seems hard to see men, women, and children, perish by earthquakes, by storm, by cyclone, or by flood. We have become somewhat accustomed to the storm and to the flood, so that they do not strike us with the great horror that we feel when the solid earth under our feet seems to be solid earth no longer. I have been told, that it is impossible for human tongue to describe the awful sensations awakened when one realizes that the very earth itself is rolling and shaking beneath our feet. Once when seasick on board of a steamer, I so longed for the solid ground that I made up my mind that I would get off at the first opportunity, no matter where I was, nor what solid ground I found. With pallid cheeks, and tear-stains down my face, I pushed my way along the plank. One of the officers of the boat called after me, and told me that I was getting off at the wrong point. I told him I could not help it; I was going to get off, right or wrong.

"But," said he, "you can never get anywhere if you stop here. There are no railroads nor any thing else."

I told him in that case I should stay there always, and be happy; and when I felt stationary ground under my feet it seemed to me then that I could ask for nothing more, providing I could feel this solid ground always. Perhaps I can realize a little what it would be to find even this old earth an uncertain foothold; and may God help me to sympathize with the brothers who have recently suffered. Death seems to us terrible in this shape, because it is comparatively new to us. We have been congratulating ourselves during all these years, that earthquakes did not visit our locality, or, at least, that the visitations are so far between, and so feeble when they do come, we might consider ourselves comparatively exempt. The events of the past few days teach us differently. Great forces are at work under our feet, that we dreamed not of, and our whole continent is liable at any moment, or at any hour, to be rolled and tumbled about like the waves of the sea. After the great Chicago fire, men talked of building houses that would withstand the devouring elements; but what architect or mechanic shall think of planning a building that will be secure against earthquakes? The idea is folly. The conviction forces itself upon us, that there is no place exempt from devastation and death and ruin. No place? Yes, thank God, there is a place of refuge. We are told in the Holy Scriptures, that, although heaven and earth should pass away, God's words shall not pass away. I do not mean, mind you, that the Christian shall be spared the pangs of death, or that he shall be passed by when the devouring elements come; but I do mean, that grace and strength will be given the one who puts his whole trust in God, so that he may bid defiance even to calamity and death. "My grace is sufficient for thee," is what the Holy Spirit told Paul when he besought God to take away the thorn in the flesh. But the thorn remained there still, and to the end of his life, to buffet him.

The question has sometimes been asked, why God should permit innocent, helpless women and children to thus suffer and die. My friend, the helpless and the innocent suffer and die by disease, and have suffered and died since time began. I presume the sufferings and death caused by an earthquake are not to be compared with the sufferings caused by disease. Disease is all round about us; we are familiar with it; and for some reason, perhaps not quite explained, most of us would prefer to die a slow and lingering death by disease, rather than a sudden death by accident; this feeling is perhaps largely caused by weakness—more largely by want of faith. It is true, that a faithful, trusting follower of the Savior is sustained by a Savior's love, and enabled to bear the pains and sufferings of disease; but is it not true, too, dear friends, that the faithful Christian has grace and fortitude given him to face death and torture unflinchingly, even though it comes by accident, or in the discharge of regular duties? I think he has, and yet I have asked myself the question over and over again, whether *my* faith in God's loving care is such that I should not get demoralized and frightened, and behave myself in a manner unworthy of a follower of the Lamb. May God help me to endure trial when the trial comes!

We are told by the papers that meetings were held in Charleston, and that groans and prayers were sent up to the Father, beseeching him to spare them from further shocks of the earthquakes. But still the shocks went on. Shall we not bear in mind that even the prayers of the Son of God for deliverance from the cup that stood before him were not granted? It is true, he ended with "Nevertheless, not my will, but thine, be done." But what mortal is there among us who could have the grace to say, when death faces him, "Thy will, not mine, be done"? And were these prayers that were offered up then in accordance with that spirit? When in sore trouble, or amid intense pain, it is human and natural to ask simply for deliverance—nothing more. My friend, did you ever think of it, that, when you ask God to deliver you from the pain and trials that fall to the lot of average mankind, you are asking to be an exception to the general rule of humanity? In that light, is it not a selfish one? Can you be a consistent follower of Christ, and ask that your path may be easy and smooth while your fellows are suffering all round about you? In our little home circle, the younger ones are prone to drift into selfish ways if they are not carefully taught and guarded. Sometimes Huber, in the exuberance of his spirits, sings out as soon as we get to the table, "Give me some strawberries. I want some strawberries. Mother! mother! give me some strawberries!" And this request is often made before any one at the table has been served at all. Sometimes I try to show him his selfishness by a reply something like this: "Why, my boy, do you want some strawberries when neither cousin Mabel nor any of the rest have had any at all?" Now, even though Huber can not understand the truths of astronomy very well, he can be taught the beauty of a self-sacrificing and Christian spirit; and he usually hangs his head with a look on his face that indicates that he feels ashamed. When pressed for an answer, he speaks up like a man, and says, "Wait on cousin Mabel first." Now, then, dear friends, are not our prayers for deliverance too apt to be like the request of the little one for strawberries? We want to be waited on first; we want the best of every thing ourselves when there is a choice of best.

One of the daily papers, a few days ago, was commenting on the different people who travel in our railway cars. The paper spoke of the fidgetty, nervous people who are unused to travel, and have to be making constant inquiries as to what to do and how to act. Then they contrasted them with the class who make a regular business of traveling—the commercial class, for instance. Well, they said this latter class would be off the train almost before it had stopped. If there were to be twenty minutes for dinner, they were first to the dining-table, and got the best places and secured the best viands before the former class had found out where the dining-room was. If tickets were to be secured for a sleeping-car, they secured all the best berths first, and left the others to do as they could. Now, I hope I am telling the exact truth when I say I don't want the best places when I travel. I hope I should feel ashamed of myself, even if I were smart enough to succeed in getting the best of every thing, and the easiest places. I am sure I am, because in so saying I want to take my chance among the people. If somebody has got to take a poor place, let me be one of them. If I don't realize to the full extent what I am saying while I dictate these words, may God help me to come so near to him that I can say, "Give me not the best of every thing in life, but help me, and give me grace and strength to take some of the hardest places. If pain is the lot of humanity, help me, O Lord, to take my share of the pain and suffering; and when death shall come, whether it be by earthquake, by cyclone, by storm, or by flood, or by slow lingering sickness, help me, Lord Jesus, that through it all I may be able to say, 'Thy will, not mine, be done.' And if death should come with sudden horror, help me that I may be found ready to deport myself as becometh every follower of Him who died for us all."

I presume it is no doubt true, that only a few of us have any real comprehension of the amount of suffering poor humanity is sometimes called upon to bear.

As a general thing, no one thinks of murmuring against God when he dies in a natural way on a sick-bed; but, if I am correct, death by accident or great catastrophes, like earthquakes, floods, and tornadoes, does not compare in suffering with natural sickness. In speaking of some cases of intense suffering, please bear in mind that I do it solely that you may take a fair view of what doubtless lies before many of us. A Christian needs to be brave. He needs to be able to take pain and suffering in a manly, heroic way, and to take it, too, when none are near to look on and sympathize, if need be. Two cases have come to my knowledge, of such excruciating pain from prolonged suffering that the sufferers begged their friends to take their lives, to put an end to their misery. No doubt the poor sufferers had become so exhausted and worn out that they did not comprehend fully what they were saying, and perhaps delirium had something to do with it. It is true, I believe, that it is the lot of some to die comparatively without pain; but as we read that God sends the rain upon the just and upon the unjust, I believe it is also true that he sends terrible and agonizing pain upon the just and upon the unjust. I have not been able to learn that the most sincere and devoted Christian is, as a rule, spared from suffering, because of his devotion to the Savior. In fact, it has sometimes seemed otherwise, verifying the text, "Whom he loveth he chasteneth."

It was my privilege to be near a dear friend and relative a good deal of the time during her last sickness and death. For years before her death she had expressed herself as willing to go when God should call her. Her decline was slow and very painful. For some weeks before she died she would ask wearily what time it was, because the time passed so slowly. She longed for the night, and she longed for the morning; but amid it all, nothing seemed to give her so much comfort as to have somebody read to her from the Bible. I came in one day to read to her, but found the family physician there. Like too many physicians, he was an ungodly man. He stood by the bedside, apparently in no hurry, laughing and joking; but when she asked me to read to her, and desired him to sit down a moment, he excused himself by saying he hadn't time. Now, although she was suffering at the time the most intense agony, she plead with him to listen to a few words from the Holy Scriptures. She did not *forget* her pain and suffering, but she *ignored* it as being of little consequence compared with the wish to do something for his soul's salvation. As the family physician, it was to be expected that *he* could do something to alleviate *her* intense suffering; but although he seemed to treat it as a light matter, she overlooked it all, and seemed only anxious that *he* should be healed. Now, God sustained her amid these sufferings, and helped her to bear them, but she felt the anguish none the less. She never complained nor murmured, although she was one of those organizations that feel pain most keenly. When she was so near her end that she was unable to speak to us, or even to give any sign, it was evident that the poor tortured body was suffering still; and when the last breath was drawn, and exhausted and worn-out nature refused to move any further, it was evident from the expression on her face that the last pang of death was the utmost agony. I knew her so well that I could tell by the movement of her face and mouth when she was suffering, and I think it quite probable (although some physicians may say she was not then conscious of pain) that the suffering of that last brief moment surpassed any thing she had ever known before. When it was over, a placid, peaceful expression settled over the features. She had fought the good fight through intense pain and suffering. She had finished the faith, like Paul of old, and the crown of righteousness was hers.

Now, my friends, far be it from me to frighten any one by the thought of death; on the contrary, I would bid you be brave, and strive to say with the Master, "Thy will, not mine, be done." We are human, and a kind heavenly Father will, without question, make due allowance for human weakness, even should we be tempted to feel, for the time being, that he has forsaken us. It will be no more than what the Master did. Whether it shall come by slow and torturing sickness, or by the swift elements over which we have no control, let us be ready to die as men, and as becometh Christian men and women.

The progress which science seems to be now making would indicate that we are, at least in a measure, at fault for the sufferings of sickness and disease. It may also be true that we are remotely responsible for floods and cyclones; but what scientist dare have the boldness to say that we are in any sense or measure responsible for the dire consequences of the earthquake? It is a matter that is in God's hands entirely. In that case, why should we worry or be afraid? The spirit that prompted the patriarch Job, when he said, "Though he slay me, yet will

I trust him," is what we need; and the chapter from which our opening text is taken will help us toward it. Some of us are naturally timid and cowardly. I have sometimes been afraid that I should fail miserably in living up to my own teachings were I suddenly called upon to pass through such a disaster as many of the friends and neighbors have been called upon to pass through in and around poor Charleston. In a recent number of the *Sunday-School Times* we find the following:

> "It is recorded of John Bunyan, that, once when he was in prison, and uncertain whether he might not soon be condemned to die, the thought entered his mind: 'Suppose God should withdraw himself at the very last moment, fail to support me at the gallows, abandon me!' Then he says he resolved thus: 'If God do not come in, I will leap off the ladder even blindfold into eternity, sink or swim, come heaven, come hell! For it is my duty to stand to his word whether he ever looks upon me or saves me at the last, or not!'"

One is almost inclined to smile at the above; and yet, my friends, does it not embody a wonderful truth? God has placed us here in this world, and paid us a great compliment in making us free—free to step toward heaven or to step down to ruin. Now, shall we not use this freedom to be bold and brave for the right, no matter what the consequences are? We are not responsible for earthquakes; but we *are* responsible for our behavior when God sees fit in his infinite love and mercy to call us to face death and the great unknown beyond.

In conclusion, how much does it matter whether we die now or die ten years later? I once visited a sick man, near to his death, with my old pastor, whom I have before mentioned. The man had (since his sickness) made some profession of religion, although his whole life had been very intemperate and bad. The minister asked him if he would like to have us pray for him. "Yes," he said, "and please pray that I may get well." Now, then, suppose we had so prayed, and that he had recovered, what would he probably have done with ten years more of life? Why, from the talk I had with him, and from what I knew of the man, I felt sure it would have been ten years more of drinking and wickedness; at least, I am safe in saying that the ten years would have been of no sort of benefit to him or to anybody else. In such cases what are a few years of life worth, or what does it amount to?

In a recent Sunday-school lesson we find the text, "If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you." No doubt a great deal of discussion has arisen in regard to this verse. May be I am not equal to the task of handling it; but, dear friends and fellow-Christians, I feel sure of this, at least: That those who are abiding in Christ will never be found begging simply for an easy life, or one of freedom from pain. I do not mean to say that it is wrong to pray that your life may be spared, or that God may ease the pains that rack your body; but is not such a prayer better when put something like this? "Help me, O Lord, to better understand the laws of health and the laws of life, that I may be able to see wherein I have transgressed these laws, that I be thus afflicted. And if my labors in thy vineyards have heretofore been pleasing in thy sight, and if it is consistent with thy holy will that my life should be spared, I pray thee to help me to arise from this bed of suffering. Nevertheless, not my will, but thine, be done." When we ask God for any of these things, we ought to be in such an attitude of heart that we can say, "Thine be the praise and the glory for ever. Amen." If we are abiding in Christ, our prayers are not likely to be selfish or inconsistent; and if they are in the spirit of Christ, God will surely answer.

While speaking of this subject of dreading death, and longing for longer life, permit me to refer to an incident I may have mentioned before. I wish to speak of it because it contrasts so powerfully with what the life of a Christian should be: During a steamboat accident on the Ohio River, great numbers of people were thrown into the water, and many were drowned. Bystanders on the shore gave what aid they could; still many lives were lost in spite of them. Well, during this scene of excitement big strong men were seen to hurl or strike weak women to get them off the planks whereon they had a promise of being rescued, in order that they might save their own lives. Of course, it would not have been safe for those men to land where the people could get hold of them. They accordingly made for the opposite shore, and escaped on planks and ran off into the woods. I can readily imagine that they were intemperate men—gamblers, possibly, may be highway robbers by profession. They did not propose to die, even though a few helpless women *did* have have to be murdered in order to save *their* miserable lives. Contrast such a spirit with that of the self-sacrificing spirit of a Christian. And beware, my friend, that nothing in your life or actions should ever come, even remotely, near to such a spirit. Our lives belong to God. They are his to give and his to take away.

I must not omit mentioning a feature connected with these losses of property and life that seems to have something encouraging in it. At the time of the great Chicago fire, almost everybody was astonished to see the alacrity with people north, south, east, and west, rushed forward to aid the sufferers. Chicago had but to make her wants known, and food and clothing, as well as money, poured in from all sides, until that great city of destitute ones was obliged to say, "It is enough." And this one thing, I am sure, did more to bring about friendly feelings and friendly relations among the people of the different cities of the different States than almost any other thing that could have happened. So far as I have learned, the same thing will be found true for the sufferers at Charleston. Already the mayors of the different cities, and the officers of the government, who have it in their power to send relief, are doing all that rapid communication and quick transit can do. Who knows but that this event may do more toward restoring and establishing on a permanent basis friendly relations between the North and the South than any thing else that has happened for many a long day? In the language of our text, the gates of death have not been opened unto us, neither have we seen the doors of the shadow of death. We know but little of the machinery that governs the universe in this life, and we know even less of the great unknown eternity beyond it. But we *do* know that a kind loving Father in heaven looks down upon us, and that in his own good time his kingdom shall come, and his will be done on earth as it is done in heaven. May he give us grace to say, under all circumstances and conditions, "Blessed be his holy name."

GLEANINGS IN BEE CULTURE.
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A. I. ROOT,
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MEDINA, SEPT. 15, 1886.

Where wast thou when I laid the foundation of the earth?—JOB 38:4.

DISCOUNT ON ORDERS RECEIVED THIS FALL FOR GOODS TO BE USED NEXT SEASON.

WE will, during the month of October, allow a discount of 10 per cent on goods ordered now, strictly for next season's use; that is, we allow the above discount for goods ordered now that you will not need to use before next spring. This will include Simplicity hives, sections, frames, honey-extractors, etc.; but it does *not* include chaff hives, glass and tin receptacles for honey, and, with some exceptions, tools and machinery. We make the above discount that we may have something to do during the dull fall months, and to allow you something for furnishing the money now, instead of six months hence.

OUR CARP-POND.

WELL, after all this long time I am glad to be able to say that we have young carp in our pond, so plentiful they look like swarms of bees. They are now from half an inch to an inch in length. I do not know why we have not been able to see the little "people" before, unless it was on account of musk-rats and mud-turtles. Ernest killed the turtles with his gun, and one of our boys whom we call Fred happened to be expert with steel traps. I offered him 25 cts. for all the musk-rats he would catch. It turned out bad for the musk-rats, but it came pretty near filling Fred's pockets with silver quarters.

TERRY'S SYSTEM OF POTATO CULTURE.

WE are just now rejoicing over great large fine potatoes, and almost no small ones in a hill. They are the result of the teachings of the Potato Book. If you should plant a dozen stalks of corn in a hill, you would get a great quantity of nubbins and no corn. Well, my friend, if you put a great many potato-eyes in a hill you usually succeed in getting a large lot of "small potatoes:" whereas by Terry's system you have one large stalk and no more; at the proper distance, another large stalk, and so on, and the result is as you might expect—large fine potatoes, and probably more bushels to the acre than you could possibly get in the old-fashioned way.

OUR NEW BUILDING.

IT is now roofed and inclosed. The engine is in place, set on a bed of masonry that seems as if it might stand the shock of an earthquake—that is, if any thing could withstand such a catastrophe. The shafting and pulleys are ready for their places, and every thing about the whole establishment is to be the best of its kind that the present age affords. Special machinery, built expressly for the different processes of bee-hive making, the results of the experience of many busy years in the work, are to take the place of our old machines wherever they can be bettered. The combined area of the floor room in all the three buildings now measures nearly a whole acre. Counting the barn, toolhouses, and warehouses, it would make fully an acre and a quarter of covered floor room for our hands to work on during stormy weather.

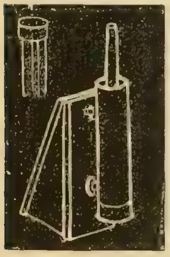
MORE SWARMING OUT.

IT did not happen in December this time, but it happened to be exactly Sept. 1. It was not the queen-clerk this time, and Ernest had nothing to do with it. It was our daughter Maud. The last we saw of her she was going northward, and by and by we heard of her over in Canada. You know, I have always had a warm place in my heart for the Canadians, and now I don't mind telling you why. When Maud started on her trip, one of our Canadian boys, John T. Calvert, whom you have heard me mention, went with her, I suppose for safe keeping. Years ago, when cares pressed, I prayed, as I had often prayed before, for efficient helpers; and by one of these wonderful providences a Christian boy away off in Canada was praying too, for a place to work where he need not hear God's holy name taken in vain day by day. Through GLEANINGS he heard of us and our work, and John has proved himself a blessing indeed in more ways than one. If he is a fair sample of Queen Victoria's subjects, we can in real truth say from our heart, "God save the queen." Ernest and John have been away together at school. When my health threatened to give way, Ernest took hold of GLEANINGS, and John rolled up his sleeves and took one of the next most important positions in our establishment — in fact, the position which for several years I had feared none but myself could ever fill — the position of directing the purchases. John has filled the position for the greater part of the present year in such a way that I begin to have more faith, perhaps, in the younger ones in general; more faith in Queen Victoria's subjects, and, I trust, more faith in God. May he grant that this union between one of the subjects of the stars and stripes and one of Queen Victoria's domain may be typical of the friendly relations that seem fast growing up between the two nations. Now, then, Bro. Jones of the *C. B. J.*, we extend again to you the right hand of brotherhood, and feel that we have an additional reason to claim relationship.

OUR OWN APIARY.

WEBSTER'S FUMIGATOR, OR SMOKING BEES WITHOUT SMOKE.

THE above fumigator has arrived, and has been tried in "Our Own Apiary." It has the appearance of any ordinary smoker. The barrel, however, is made of zinc, I suppose, to resist the action of the chemical agent used, and is so fastened to the bellows that it can be quickly removed at pleasure. To facilitate handling, the barrel is also fastened a little to one side. In order that you may more clearly understand, I submit a diagram of the Webster fumigator.



WEBSTER'S FUMIGATOR.

At the lower end, you observe, is a cap. The same detached is shown at the upper left-hand corner. To the rim of the cap are soldered four wires, hooked at their ends. In these wires is secured a sponge. This sponge is moistened with 50 or 60 drops of the agent, and on being slipped into the barrel of the fumigator the apiarist is ready for work. Accompanying each smoker is a bottle of the agent, which, I should say, ought to last a season.

WILL THE WEBSTER FUMIGATOR WORK AS SATISFACTORILY AS THE ORDINARY SMOKER?

After having prepared the fumigator as given in the directions, I first tried it on myself, inhaling as much of the odor as I could. Did I experience any disagreeable effects? Not at all, nor was it even unpleasant to me. "Well," said I to the apiarist, "that wouldn't drive even a fly, let alone vicious bees." We selected a cross colony, opened it, and gave then a few whiffs. Yes, it *did* drive them down some, but not like smoke. We then tried the fumigator upon gentle Italians. The effect was the same as before. For vicious bees, the directions say, "Add four or five drops of ammonia to the sponge." On the following day I added the ammonia as directed, and the results were much more satisfactory, and I then opened and examined with it 50 or 60 colonies very successfully. Once or twice, from force of habit, I found my hand jerking back involuntarily when my hand came in contact with the barrel of the fumigator, that member not clearly recognizing the difference betwgen a hot smoker and a cold fumigator. No, it does not have to be handled like hot cakes. It can be picked up without fear of being burned; there is no danger of its setting any thing on fire by contact or sparks; neither does it go out. It is always ready, and requires neither matches nor a dusty litter. I have briefly summed its good features, now let us consider its bad points: The fumigator drives bees to some little extent, and many of the operations connected with bees are assisted by it; but for real conquering and quickness of effect, smoke is far superior. Why? Because smoke is much more severe, and one good puff from the Clark, to my notion, is equal to half a dozen whiffs from the fumigator. The odor from the latter is not pungent enough, even with the ammonia, and *I* did not succeed in making it conquer vicious bees. I recollect in opening one hive of hybrids I had to lay aside my fumigator and bring to bear the smoker. I need hardly say that two or three puffs of the latter made the little rascals succumb. Again, the agent used in the fumigator is a liquid of the consistency of thin syrup, and is very "sticky stuff." Of course, I got my fingers all daubed, and to get it off seemed to baffle even soap and water. Now, I have found from my observation that *not* all men are neat; and if my memory serves me rightly, Mrs. Root, in my hearing, has expressed a similar opinion. I conclude, therefore, in the light of this fact, that *we* must have nothing sticky about a smoker.

THE ODOR FROM THE FUMIGATOR.

There is a very strong odor about the agent used in the fumigator (not pungent, mind you), and the scent has a way of clinging to the clothing, like tobacco from a smoking-car. During one forenoon that I used the fumigator, my clothing had acquired this scent, which smells, as nearly as I can describe, like carbolic acid and tar, of which, indeed, I believe it is made. Yes, my clothing, hives, and, I was about to say, that portion of the apiary where I worked, smelled of that stuff. It so thoroughly destroyed my sense of smell for foul brood, that, in the afternoon, I used the Clark. When I arrived home that noon, Mrs. Root exclaimed, "Why, where have you been? you smell of creosote." Yes, it is true, my clothing did carry the odor of tar and carbolic acid, though I would say that was not at all offensive.

Now, I have endeavored to state candidly the good and bad points with the fumigator invented and sold by W. B. Webster, of Workingham, Eng. I can not say that I think it will take the place of smoke as yet, but I think our English friend has taken a stride in the right direction.

FUEL FOR THE CLARK SMOKER.

In another column our friend J. A. Green tells what and how he prepares fuel for smokers. I see he uses successfully planer shavings in the Clark smoker. Our experience has been much more favorable so far with the basswood sawdust, mentioned on page 551. With the latter it is a common thing for us to make the smoker last for half a day without refilling. To do this we prepare the fuel as follows, for since our last report we have learned some new kinks in filling: Invert the smoker (if you are using a Clark) and drop upon the grate some light rotten elm; next drop a lighted match upon this wood;* work the bellows until the rotten wood is all ablaze, and then drop over this a thin layer of finely broken rotten wood. Work the bellows meantime, and fill with basswood sawdust mixed with a few pieces of rotten wood. There, now, just see what a volume of blue smoke you have! When not in use during the half-day or so, the Clark as thus prepared will die down, but not go out; for you know sawdust will smoulder for a great length of time. A few vigorous puffs will quickly develop a large quantity of smoke. With this sawdust smoke I think I should not be afraid to "tackle" the most vicious Eastern bees, without veil or other protection. In fact, neither has the apiarist nor myself when at work in the apiary had occasion, with one or two exceptions this summer, to resort to the veil; but we have smoke, mind you—enough to make you cry.

BEES ROARING ON RED CLOVER.

While working among the bees the other day, I saw that they were bringing in a large quantity of light-colored honey. Tasting it I detected the unmistakable bumble-bee honey flavor, for which we boys used to pay so dearly. So much of this red-clover honey has come in of late that we shall not be obliged to feed nearly the quantity of sugar syrup we had anticipated. Neighbor Chase, who furnishes us such nice comb honey, says that his 50 colonies have gathered 2000 lbs. of this same red-clover honey within the last few days. Our bees have all been roaring, and as hard at work, apparently, as if on white clover. I have marked two of the colonies whose bees have especially distinguished themselves. One was an imported, and the other a daughter of an imported. We propose to breed from these next season, if all goes well.

---

*I think that I should prefer to light the smoker as recommended by J. A. Green; see page 723.

WINTERING, AND HOW WE PROPOSE PUTTING THE BEES UP FOR THIS WINTER.

I will say at the outset, that our colonies will be put into winter quarters, essentially the same as last year; that is, in chaff hives on their summer stands. As red-clover honey has been coming in very freely of late, some colonies will be given natural stores; but a large number will have to be fed granulated-sugar syrup. Having met with good success in outdoor wintering for the past few years, doubtless many of the A B C scholars would be pleased to know that we are still using the plan recommended in the A B C of Bee Culture. In order that I may give more definite information as to some of the minutiæ, I insert below the following letter, which will doubtless cover many of the queries in the minds of the A B C scholars:

> GLEANINGS of Sept. 1st came to hand in due time, and I was in hopes I should see something from you or Ernest, under the head of "Our Own Apiary," as to how you intend to prepare your bees for wintering.
>
> 1. Have you changed any from the rules you gave in the A B C book of two years ago?
> 2. How much opening do you leave at the entrance?
> 3. Do you use the Hill device now?
> 4. When the hive is full of stores and bees, very heavy, do you remove any of the frames and put in chaff division-boards?
> 5. When a hive is rather short of stores, when and how do you feed, and how fast?
>
> When you introduce a queen by hanging the cage with queen and escorts between the combs, do you spread the combs so the bees can pass between the cage and the opposite comb, or do you put the combs tight up to the cage on both sides? Some advise never to use a queen with her own workers or escorts.
>
> If you will give this information I think you will oblige many, as rules coming from the "Boss" of the "Home of the Honey-Bees." J. H. SMITH.
>
> Stowe, Vermont, Sept. 6, 1886.

Your first question I have already answered.

2. With chaff hives we always leave a full-width entrance.

3. We have used, and still purpose to use, the Hill device. We place it over the center of the brood-nest, with the backbone parallel to the frames.

4. I think not, if I understand the condition of the colony you have in mind. We have sometimes had colonies so strong and well supplied with stores that we have given them the full capacity of the brood-chamber. They were placed on eight frames, spaced out so as to fill the lower story. During winter, combs need to be spread a little further apart than at other times. Whether the colony be strong or weak, it should be *crowded* on as few frames as possible. When the cold weather comes, their contracted apartment, if sufficient stores are provided, will be none too small for them. I would say, that most of our colonies are put on from five to six frames, with a division-board on each side.

5. When short of stores we feed sugar, as recommended in the A B C of Bee Culture; namely, 25 lbs. of sugar to a gallon of water. Perhaps the easiest way, when steam is not to be had, is to pour the water at a boiling temperature upon the sugar; then stir vigorously for a short time. Of all the feeders ever invented, we use and prefer the bread-pan feeder, holding about a pint of syrup. To prevent the bees from drowning, the ordinary cheese-cloth is spread over the pan of syrup. This pan is placed directly over the cluster, the enameled cloth or covering being rolled back. At this time of the year we raise the cover and pour in about a pint every evening. If late in the fall, and the colony is short of stores, we use a milk-pan, prepared as above, filled with syrup. We can thus feed from ten to fifteen pounds in an evening.

In regard to introducing a queen, her escorts will, as a rule, occasion no trouble. I think, however, with a valuable queen I would remove the attendant bees before caging her majesty. We space the two combs, between which the queen is caged, a little further apart, so as to permit the bees of the hive to become "acquainted" with her.

ERNEST.

HOW TO WINTER BEES.

Essays by James Heddon, Prof. Cook, G. M. Doolittle, A. E. Manum, G. W. Demaree, J. E. Pond, Jr., J. H. Martin, C. W. Dayton, and P. H. Russell, all will appear in the October number of the American Apiculturist. Send 10c in stamps for copy.
Address AMERICAN APICULTURIST,
18tf Wenham, Mass.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

A BARGAIN IN HONEY-TUMBLERS.

Among the many cheap packages for retailing extracted honey, the ½-lb. and 1-lb. tin-top glass honey-tumblers hold a prominent place. Though not quite as handy to carry as the glass honey-pails, they are much cheaper, and will be preferred by some. We have at last succeeded in obtaining these direct from the manufacturers, and get jobbers' prices instead of buying them from jobbers, as we have had to do in the past. We can thus offer them to you at the following reduced prices:

½-lb., 3c each; 25c for 10; $2.49 per box of 100; $5.25 per bbl. of 250, or $21.00 per 1000.

1-lb., 3c each; 28c per 10; $2.75 per box of 100; $5.20 per bbl. of 200, or $24.00 per 1000.

Orders for 1000 will be filled direct from the factory in Pittsburgh. You will notice that the tumblers are much cheaper in barrels, as a barrel costs us 35c, and a box of half its size costs 50c.

A. I. ROOT, Medina, Ohio.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

My queens are all gone. I have been overrun with orders for black and hybrid queens.
16-17-18 J. A. BUCKLEW, Clarks, Coshocton Co., O.

Good hybrid queens, 25 cts. each. Some 1 year old, some a month or two old.
J. H. JOHNSON, Middaghs, Northamp. Co., Pa.

For sale, 10 hybrid queens, prolific, the bees being about one-eighth dark, or gray, from them; excellent honey-gatherers, easy to handle. Price, one, 40 cents; two or more, 30 cts. apiece.
CHAS. L. HILL, Dennison, Ohio.

SELLING HONEY TOO LOW.

MRS. CHADDOCK'S VIEWS.

MR. HEDDON says, page 694, "I am sorry to read the low prices Mrs. C. tells us she is selling honey for. I think such low prices for comb honey are entirely unnecessary, and would, if long continued, drive us all out of the business. She is selling at a price below the cost of production, according to Mr. Doolittle, and I think his figures are about right." Well, Mrs. Chaddock feels sorry too; she has several dollars' worth of sorrow on hand. I always feel a sort of flustration when the time comes to begin selling honey. I love the almighty dollar, and I want all of them that I can get; and at the same time I have a conscience that is always pricking and prodding me, and telling me that I am trying to sell things for more than they are worth; and the only way that I know of to do is to strike a kind of general average between my conscience and my desires, and then go ahead. He says such low prices are unnecessary. Well, that is so for this year; but it is not so every year. If there is a big honey-yield, and half the farmers have a little honey to sell, then low prices are a *necessity* to *me*. I am not going to ship a pound of honey if I can help it. I do not want the bother of it, nor the *loss;* and if I can, by any thing short of a miracle, tell what honey ought to sell for here, I intend to sell for that.

Last spring opened up with a grand flourish. Everybody's bees wintered well, and there was honey in the willows and maples, the apple-blossoms, plant lice, and raspberries. The bees bred right up to the white-clover harvest, and were the strongest that I ever saw them so early. The white-clover yield was a princely one, and, right in the middle of it, I began selling honey. In riding about the county I took pains to inquire about other people's bees, and they were all in good condition. Then I read the honey markets as given in the *American Bee Journal* and GLEANINGS. Chicago market, for June 9th and 16th, was 14 to 15 cts., and *selling slowly*. St. Louis market for the same dates read, "Choice comb, 10 to 12 cents; extra fancy, of bright color, and in No. 1 packages, ¼ advance on above prices." I looked at the matter from all directions. I knew that sugar was selling at five cents, and butter at six; eggs at seven, and strawberries that I used always to sell at 40 and 50 cts. were selling at 20 cts. right along; and I could buy just as good lawn for 7 cts. as we paid 12½ for ten years ago; and taking all things together with the big honey-yield that we were *going* to have, I set the price at 10 and 12½. The *cost* of producing a commodity does not fix the price at which it *must* sell. A great plenty of any thing brings down the price. But the great plenty did not come. The white clover yielded splendidly; but when it was gone, every thing stopped short. Then I stopped selling at 10 cts., and I now sell only at retail. I am going to let the farmers supply the town markets with their five-cent comb honey for awhile. I'm awfully scared, I tell you. May be I've injured the honey-business all over the United States and Europe. I promise Mr. Heddon never to do the like again unless I do not know any better.

Vermont, Ill. MAHALA B. CHADDOCK.

You are touching quite an important matter, my good friend. Few things require more wisdom in business than in deciding just when to drop prices. The merchant who purchases goods that are not perishable has no trouble at all in deciding that, if he buys an article for 8 or 9 cts., and sells it for 10, he is all right; but the bee-keeper or the farmer who produces his goods by tilling the soil rarely knows exactly what they cost, and it would not matter much if he did. Every thing is so uncertain in his business that it is his duty to find the best market he can. If he can get more money for his produce by going to a large city—that is, after all expenses are paid—by all means let him do so; or if he can get more money by putting up his crop in small neat packages, and taking it fresh to people's homes, by all means do that way; but when he is satisfied people won't pay what he thinks he ought to have for his product, then he must either improve the appearance and style of his packages, or drop the price. I would not drop the price until it seemed to be the last resort. Raise the quality if possible, so as to keep the price uniform. Where the prices have been established, and the goods are going off freely, I would prefer to buy out some small producer rather than let him injure the market; and sometimes it pays better to buy out such producer, even if you can't sell the stuff for what you paid for it. But this would refer to small lots, of course. If the farmers round you have small lots of honey that they seem disposed to run off at 5 cts. because they don't care to bother with it, I would try to find out about it beforehand, and take it off from their hands. Perhaps you may be obliged to sell it for 5 cts. per lb. yourself; but it will hurt your trade very much less in that way, because you can explain to your customers the difference in quality, style of package, etc.

CHEAPEST OFFER EVER MADE.

In order to introduce my stock more extensively I will sell pedigreed Poland-China pigs, from prize-winning stock, at only 6 cts. per pound, spring pigs. Small pigs, not akin, $5.00 per pair. Sent at reduced rates by American Express. Safe arrival and entire satisfaction in every case guaranteed. Full colonies of Italian bees in A. I. Root's Simplicity hive, $4.50. Address **N. A. KNAPP,**
18d Rochester, Lorain Co., Ohio.

LARGEST BEE-HIVE AND SECTION FACTORY IN THE WORLD.

GREAT REDUCTION!

Until January 1st, we will sell at a discount. Write for reduced prices.

G. B. LEWIS & CO.,
18tfdb **Watertown, Wisconsin.**

Wanted. A partner to take a half-interest in a nice little apiary, and help me introduce one of the best bee-hives ever invented. Must be *honest*, industrious, and a good mechanic, or a good apiarist. M. J. HARRIS,
18d Clay City, Clay Co., Illlinois.

QUEENS **ITALIAN QUEENS**
Of the best strains, warranted purely mated, $1.00 each; 6, $5.00. Satisfaction guaranteed. Circular and price list free.
CHAS. D. DUVALL,
18tfdb **Spencerville, Mont. Co., Md.**

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ON THE ONE HAND

It treats pleasingly of flowers, pot-plants in the window and under glass; fine lawns, trees, shrubs, and the beautiful of Gardening; on the other, taking up the matter of better fruit and vegetables for our tables every day, and the largest profit for market-growers in all branches of Horticulture. We are speaking of our journal,

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It is a most useful and readable paper. Its style is plain, sensible, and practical; no waste of words, no long dry articles. Finer engravings and printing than its columns show can nowhere be met.

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13-23 Agricultural College, Mich.

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FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address
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Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable. Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 19tfd
*S. F. Newman, Norwalk, Huron Co., O. 19tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 19tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala. 19tfd
*E. Kretchmer, Coburg, Mont. Co., Iowa. 19tfd
Ira D. Alderman, Taylor's Bridge, Samp. Co., N.C. 19tfd
*Jos. Byrne, Ward's Creek, East Baton Rouge Par., La. 19tfd
J. W. Winder, Carrollton, Jeff. Par., New Orleans, La. 3tfd
*E. Burke, Vincennes, Knox Co., Ind. 3-1
C. C. Vaughn, Columbia, Tenn. 15tfd
Bloomington, Ill. 15tfd
D. A. McCord, Oxford, Butler Co., O. 9-19d
J. B. Hains, Bedford, Cuyahoga Co., O. 15tfd

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Who agree to make such hives, and at the prices named, as those described on our circular.

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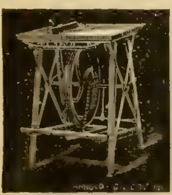
R. B. Leahy, Higginsville, Laf. Co., Mo. 15tfd
E. Kretchmer, Coburg, Montgomery Co., Ia. 15tfd
C. P. Bish, Petrolia, Pa. 19-23

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says — "We cut with one of your Combined Machines last winter 50 chaff hives with 7 inch cap, 100 honey racks, 500 broad frames, 2,000 honey-boxes and a great deal of other work. This winter we have double the amount of bee hives, etc., to make and we expect to do it all with this Saw. I will do all you say it will." Catalogue and Price List Free. Address W. F. & JOHN BARNES, 68 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

IN order to reduce my stock I will sell 20 colonies of hybrid bees at $5.00. They are in Simplicity hives on wired frames, have plenty of stores for winter, and before shipping will be packed ready for winter, including 2 chaff cushions and Hill's device. 19d GUSTAVE GROSS, Greenville, Bond Co., Ill.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey*.—New comb honey is coming in quite lively, and we find it to be of very nice quality. We quote:

Fancy white, 1-lb. sections,	14@16
" " 2-lb. "	12@14
Fair " 1-lb. "	12@14
" " 2-lb. "	10@12
Buckwheat 1-lb. "	11@12
" 2 lb. "	9@10
California extracted	5@5½

We find a good demand for honey, and expect to handle large quantities.

Sept. 22, 1886. THURBER, WHYLAND & CO.,
Read and Hudson Sts., New York.

KANSAS CITY.—*Honey*.—The market is good for all grades, and sales are large, while the supply is the same. Prices are unchanged.

White clover, 1-lb. sections	13@14
" " 2-lb. "	11@12
Dark 1-lb. "	11@12
" 2-lb. "	9@10
Light ½-lb. "	14@15
Extracted, white clover	6@7
" dark	4@5
" white sage	5@5½
Beeswax,	20@22

Sept. 24, 1886. CLEMONS, CLOON & CO.,
Cor. 4th and Walnut St's, Kansas City, Mo.

ST. LOUIS.—*Honey*.—Honey is still dull. California is offering white sage, extracted, put up in two 5-gallon cans in case, at $4.85, laid down here in carload lots. Amber, same packages, $4 50. For white clover comb sections we are getting 11@12½c½; extracted, in cans, lots, 5@6c; single cans, 6@7c. Southern honey, in bbls, 3½@4c as to quality. There is a good demand for comb honey. *Beeswax*, 21@25c. WESTCOTT & HALL,
Sept. 22, 1886. 108 and 110 Market Street.

DETROIT.—*Honey*.—Honey is being shipped in more freely of late, and prices are lower. All sizes larger than one pound are selling at 12 cts. Pound size, 12½@13c for best white. *Beeswax*, 23c.
Sept. 23, 1886. M. H. HUNT, Bell Branch, Mich.

CHICAGO.—*Honey*.—There is more demand for comb honey, and prices are firmer—12½@13c being asked for best grades of white comb honey; extracted, 5@7c. *Beeswax*, 23c. R. A. BURNETT,
Sept. 21, 1886. 161 So. Water St., Chicago, Ill.

CLEVELAND.—*Honey*.—The market has not improved of late, but prices are steady at 14 cts. for best white 1-lb. unglassed sections; 12 cts. for 2 lbs., best white; 8@9c for 2 lbs. and 1 lb. old. Extracted, 6@7c. *Beeswax*, 25c. A. C. KENDEL,
Sept. 22, 1886. 115 Ontario St., Cleveland, O.

BOSTON.—*Honey*.—We note no change in prices, but an improved demand. BLAKE & RIPLEY,
Sept. 23, 1886. 57 Chatham St., Boston, Mass.

FOR SALE.—13,000 lbs. clover honey, first class, and well ripened before extracting. Delivered at depot in barrel lots at 7 cts. H. W. FUNK,
Box 1156. Bloomington, Ill.

FOR SALE.—3000 lbs. extracted honey, in ten-gallon kegs, 117 lbs. net; 7 cts. for white clover; 6½ for raspberry. M. ISBELL, Norwich, N. Y.

CHEAP HONEY.—I have about 3500 lbs. of honey in nice 22 gallon kegs. It is dark, but very thick, and is splendid bee-feed, or good for factory-men. I have to move soon, and must sell it. You may have it for 3 cts. per pound, by the keg of 250 lbs., at depot here. M. J. HARRIS,
Clay City, Clay Co., Ill.

Foundation-Mill For Sale.

One ten-inch Root comb-mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $15.00. The list price of a new mill of this kind is $20.00. **A. I. ROOT, Medina, O.**

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I still have a goodly number of black and hybrid queens for sale. Black, 18 cts.; hybrid, 25 cts.
W. G. HAYEN, Pleasant Mound, Ill.

Do not by any means insert hybrid-queen advertisement again. I am returning money evey day, but have to withhold some, from the fact that I can't make out where in the U. S. to return it, no definite address accompanying it. C. L. HILL.
Dennison, O., Sept. 24, 1886.

4 H.-P. ENGINE FOR SALE.

A Bargain for the man who is in need of a First-Class Engine and Boiler.

This is one of B. W. Payne & Son's Eureka engines, the same that we advertise in our catalogue. It has run 3 months since it was new; has had a 10-foot galvanized-iron smoke-stack added, and is in perfect running order. The man who is holding it had to put in a larger one to meet the demands of his trade. The price of a new engine and boiler complete, no stack, is $275.00; but to make a quick sale we will sell this one with the stack for $225.00, free on board cars at Higginsville, Mo.

A. I. ROOT, Medina, Ohio.

THREE untested Italian queens at 50 cents each.
M. ISBELL, Norwich, N. Y.

CONVENTION NOTICES.

The Sheboygan Co. Bee-Keepers' Association will hold its next meeting at Chandler's Hall, at the village of Sheboygan Falls, on Saturday, Oct. 16, at 10 A. M. MRS. H. HILLS.
Sheboygan Falls, Wis.

The Southern Ill. Bee-Keepers' Association will hold its next meeting at Benton, Franklin Co., Ill., Thursday, Oct. 21, 1886, at 10 A. M. F. H. KENNEDY, Sec.

The annual meeting of the Western Bee-keepers' Association will be held in Pythian Hall, corner of Main and 11th Streets, Kansas City, Mo., Oct. 27, 28, 29, 1886. P. BALDWIN, Sec.

The Illinois Central Bee-keepers' Association will hold its next meeting at Mt. Sterling, Ill., on Tuesday and Wednesday, Oct. 19 and 20. J. M. HAMBAUGH, Sec.

The 4th annual meeting of the Progressive Bee-Keepers' Association will be held in the Town Hall at Bainbridge Center, O., on Thursday, Oct. 7, 1886. Parties wishing conveyance from Geauga Lake Station, 3 miles distant, on the N. Y., P. & O. R. R., will please notify me so that arrangements can be made for the same. All interested are invited to come and bring their lunch-basket. MISS DEMA BENNETT, Sec.
Bedford, Cuyahoga Co., O.

There will be a bee-keepers' convention in K. of P. Hall, No. 1158 Main St., north of 12 St., Wheeling, W. Va., on Oct. 15, 1886. Bring samples of honey and other things. HENRY LEWEDAG.
Wheeling, W. Va.

The semi-annual meeting of the Central Michigan Bee Keepers' Association will convene in Pioneer Hall, at the Capitol Building, in Lansing, on the third Tuesday of October, at 10 o'clock A. M. J. ASHWORTH, Pres.
Lansing, Mich.

THE NORTH AMERICAN BEE-KEEPERS' SOCIETY.

The society will hold its 17th annual convention, Oct. 12, 13, and 14, 1886, at Indianapolis, Ind.

The meeting will be held in Pfaffin's Music Hall, 82 and 84 North Pennsylvania St., one of the most pleasantly situated halls in the city. Good ventilation and plenty of light.

The society headquarters will be at the Occidental Hotel, corner of Washington and Illinois Sts., in the heart of the city, and but a short distance from the hall. The regular rates at this hotel are $3.00 a day. Special rates for those in attendance at the convention will be $1.50 per day.

The North-Western Bee-Keepers' Society, The Indiana State, The Eastern Indiana, with various county and joint societies, will meet in union with the N. A., making it one of the most formidable meetings of bee-keepers ever held in this country. Every thing possible will be done to make the meeting pleasant and entertaining. A cordial invitation is extended to all.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES HONEY & HOME INTERESTS.

Vol. XIV. OCT. 1, 1886. No. 19.

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EXPELLING BEES FROM INCORPORATED TOWNS.

PROF. COOK CONSIDERS THE MATTER.

OUR city council is about passing an ordinance excluding all bees from the corporation. We have perhaps 15 persons who keep bees, and they do not have over 100 stands, all told; but owing to ignorance and prejudice they are about to banish all bees. We do not want any trouble, and shall do all we can to keep peace; but if worse should come to worst, can you give us any light as to the legal points in the case?

Barry, Ill., Sept. 14, 1886. H. C. FIRST.

The above was forwarded to Prof. Cook, requesting that he would give us his opinion, and especially that he would advise in regard to the matter. Below is his reply:

This matter of antagonism between bee-keepers and those of other occupations is surely becoming a serious one. Truly, if bees are a nuisance—and on no other ground can they be forced from village or city—it is strange, passing strange, that we—aye, the world—had not found it out before.

We now have nearly 50 colonies of bees here at the college, and, as you know, Mr. Editor, we are a little hamlet, and these bees are within three rods of Dr. Beal's barn, and only two or three rods further from his house; yet I have never heard Dr. Beal complain a word. Several people in Lansing have bees, and I have never heard a word of complaint. I know of a city in Michigan where two or three quite large apiaries have been kept right within the corporation, and yet no complaint, so far as I know, has been made.

We all know, that, in spring, bees may soil clothes hung near by an apiary, and we know that bees may become very cross in autumn, and may thus greatly disturb those who may either by chance or necessity come near the bee-yard. We also know, that, in times when no honey is being gathered from the flowers, bees may attack fruit or exposed sweets in houses and stores, and thus become sometimes almost an insufferable annoyance, especially to those who are unused to bees, and so have a terrible dread—and just as terrible, even if groundless—of being stung.

I do not believe any town council will unite against the bee-interest unless there is some cause. Almost all our people respect any honest, legitimate industry; and surely ours must be respected, not only from its merits but from its very age.

THE BEE-KEEPER'S DUTY.

Now it occurs to me, that each bee-keeper ought to reduce these disturbing elements to the very lowest minimum. In spring, why not shut the bees in on wash-days, if a near neighbor is to be annoyed? I know wash-day is hard enough for my wife, even at best, and it would be a sore vexation to her and me (for what hurts the "gude wife" hurts me more), if that ring of immaculate white which adorns our clothes-reel each Monday were to be flecked with the dirty yellow which often marks the first flight of bees. How easy to prevent this on the part of the bee-keeper! Duty demands that neglect in this shall never break the friendship of neighbors.

But how about the troubles in fall? We all know, that, if we work late in the season with hybrids, or bees disposed to be cross, in the usual way, when there is no honey to gather, especially if it is cold, we incite such anger that the bees may not be approached, even from quite a distance, without danger of stings. In such cases, if we have near neighbors we must not work with the bees; or if necessity compels such work, *never work without a bee-tent.* Then we do not cause the bees to become irascible; we get no stings ourselves when at work, and we run much less danger of inciting the bees to rob. Just this one precaution may save a neighborhood quarrel. If in September we find our bees are greatly troubling our neighbor with his fruit, can't we shut the bees up, put them in the cellar, or even remove them a mile or two, rather than awaken the displeasure of our neighbors?

Again, if we find our neighbors are troubled, why not go to them with a heart full of love and our hands full of nice honey, and say we regret this annoyance, and talk over the matter, asking for forbearance, and promising all possible caution? Such a course will win our neighbor, and what more glorious than that? When the grand apostle Paul said, "As much as lieth in you, live peaceably with all men," he was simply urging against quarrels, for a quarrel is very difficult when one of the parties has only love in his heart. Next to a perfectly harmonious home is a perfectly united neighborhood. Let each of us bee-keepers do our part to secure just such a one at our place, and I believe there will be few occasions to invoke the aid of law, and few to call for the aid of "the Union."

THE LAW, AND BEE-KEEPERS' UNION.

No doubt some have feared that the "Union" might become a sort of heartless monopoly, a huge sort of "boycotter," whose tendency would be to stir up broils. Very likely there will arise cases like that in Wisconsin, when, with even the greatest care, litigation can not be avoided. In places like California, where the fruit-interest is of such magnitude, it may be almost impossible to avoid prosecution at the hands of the law. Good men *may* possibly feel that bees and bee-keepers are really a nuisance, and call upon legal authorities to settle the matter. In all such cases the case of each bee-keeper is that of all, and I see no justice in making the one unfortunate bear all of what might have come to any one of us; hence I believe in the "Union," and feel glad to support it. But I also feel that the "Union" must be very wary. It *must see* that in *all cases* the bee-keeper has done *all in his power* to preserve peace, before it lend its aid. If a bee-keeper is "cranky" and irritable, and tries to provoke, rather than allay strife, then he should be forced to bear his own burdens. It is to be hoped that the "Union" will, in every case, fully investigate, and never come to the rescue unless it find that the bee-keeper has done all in his power to make all satisfactory without appeal to law. What a grand lesson our "Alabama-claims arbitration" gave to the world! Let us all profit by it. If, however, we find that circumstances make it imperative that the law settle some of the equities which bear upon bees and their relations to fruit, then let us all help bear the burden; for we all share the benefits of a verdict which we need not fear.

A. J. COOK.

Agricultural College, Mich., Sept. 22, 1886.

Friend Cook, I knew we should get something good and substantial from you in regard to this matter. I had not thought of shutting the bees in their hives at the time they soil clothes, but I think it can be done with plenty of wire cloth, without harming the bees; and after the bee-keeper has done that, it may transpire that the bees that do the mischief come from somewhere else. This happened at one time when we had our troubles with the "cider-mill man." We watched the Italians that were working on the sweet cider, and then showed him that the greater part of them went off in another direction, and obliged him to admit it. A great many times innocent bee-men are blamed, when the bees that are doing the mischief come from the woods or from some other apiary. If it is found to be impracticable to shut up the hives, I would move the bees away temporarily. I am sure this would be better in the end than lawsuits and hard feelings.—In regard to the Bee-keepers' Union, I hope and pray that those who have the matter in charge may be very careful that it never show its power unless it is absolutely necessary.—Now in reply to our good friend F., who opens this article, can't he profit by some of Prof. Cook's advice, and so present the matter to the council that the banishment may be unnecessary? Let us all remember Paul's wonderful text, "If meat make my brother to offend, I will eat no flesh while the world standeth."

THE NORTH-AMERICAN CONVENTION.

IS IT THE DUTY OF BEE-KEEPERS TO MAKE SOME EXERTION TO ATTEND IT?

ERE another number of GLEANINGS is printed, the North-American Bee-keepers' Association, the Northwestern Bee-Keepers' Association, the Indiana State Bee-Keepers' Association, and I don't know how many other district and county associations, will have met in a grand convention at Indianapolis. Association is a great thing; it fosters, encourages, brings out, and makes known individual efforts, plans, and inventions; not only this, but the friction of mind against mind seems to bring about a polish and sharpness that can be secured in no other manner. We think better of our fellows by coming in contact with them. The corners are thereby knocked off. We learn to measure *ourselves;* to see our faults and failings; possibly to discover some hidden excellencies that we knew not before that we possessed.

The social feature of these meetings is the grandest of all; it does one good to grasp the hand of an old friend, look in his face, and listen to his words, or to meet some one whose writings we have followed for years, and whom we have often wished to see. Then there are the little chats in by-places, at the table, and the long-continued, half-confidential talks indulged in long after Morpheus has beckoned with outstretched arms. But why say more? Those who have attended a good bee-convention know exactly what a "flow of soul" there is, and that all go home greatly encouraged, feeling more than ever that they can and *will* make a success of bee-keeping.

I think that we as a people go too little for *pleasure* or *recreation.* Where had a bee-keeper rather go, even for *pleasure*, than to a grand *national* convention of bee-keepers? I have met many of my brother bee-keepers at conventions, but I hope to meet still more of them at the coming meeting at Indianapolis.

By the way, it may be cheaper for many to go via Chicago, as we can secure *very* low excursion rates to that city, and reduced rates from Chicago to Indianapolis. I *think* I shall go that way myself. There is only one objection to my going via Chicago; and that is, that I can buy an excursion ticket upon Tuesday *only*, hence I can not reach Indianapolis until Wednesday morning.

Rogersville, Mich. W. Z. HUTCHINSON.

Friend H., I believe I entirely agree with you here in regard to the benefit of conventions. I suppose each bee-keeper, however, knows best whether he can afford it or not. So far as I am concerned, I feel now that I have no right to be absent, and I expect to attend every *national* convention held, so long as I live and God gives me health and means to be on hand.

CAMPANEA, OR BELLFLOWER.

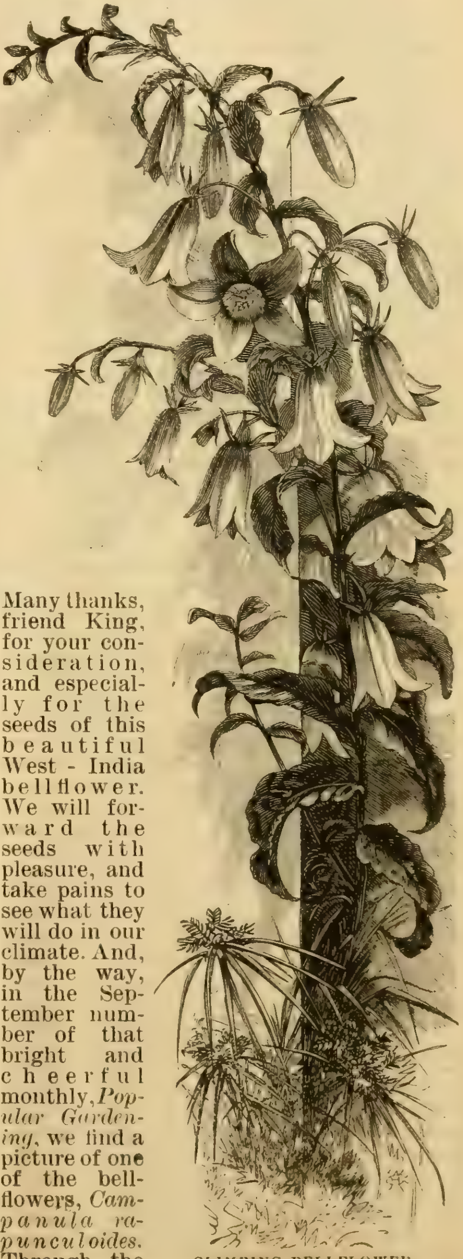
THE GREAT HONEY-PLANT OF THE WEST INDIES.

THE campanea (better known as bellflower) is indigenous to all the West India Islands. There are at least four varieties, two of which are known to yield honey. One of these blooms from about the middle of September till March, but yields very moderately. The other blooms from November till March, and is at its best from December to about February 15th, when it gradually declines and finally ceases altogether by the 1st of March. This last variety is far more numerous than all the others combined, covering the hedges, small branching trees, and bushes, throughout the length and breadth of Cuba, scenting the air with its sweet and delicate perfume — not unlike that of the pink during the period of its bloom.

In describing the appearance of this trailing vine in full bloom, friend Osborn aptly compares the sight to "long windrows of drifted snow seen at a distance." When in the vicinity of large apiaries, the volume of sound occasioned by the mingled hum of millions of contented bees and other insects, all busy in gathering the delicious nectar, reminds one of the music of ocean waves breaking on a distant rock-bound coast. Strike from the list of honey-producing flora this queen of flowers, and you diminish by more than one-half the entire honey production of the West Indies.

In appearance, bellflower much resembles the morning-glory, the bloom being about the same size and shape, but perfectly circular and more flaring. In color it is white, except about one-fourth of its lower and inner concave surface, which is a dark purplish yellow. The nectar is as white as that obtained from the basswood — very thick, averaging 12 lbs. to the gallon. It has a delicate aroma, and is the most delicious and palatable of any variety of honey we ever tasted, and is destitute of that "stinging" sensation in the throat, so common to most of the honey produced in this country, particularly that gathered from white clover. As the Cuban *winters* — when campanea is in full bloom — are not unlike our *summers*, it occurred to me that this plant, by the peculiar process known to botanists, might, in the course of time, be so acclimated as to prove a boon to our honey-producers. With this end in view I send you some of the seeds of this best variety, gathered by myself, requesting you to send a little to friends Newman and Prof. Cook, and to any others you think possess the patience and facilities for giving the plant a fair chance. Of course, you will be expected to be chairman of that "committee," and be the chief experimenter, reporting progress from time to time through the columns of GLEANINGS. A. J. KING.

New York, N. Y., Sept., 1886.



CLIMBING BELLFLOWER.

Many thanks, friend King, for your consideration, and especially for the seeds of this beautiful West-India bellflower. We will forward the seeds with pleasure, and take pains to see what they will do in our climate. And, by the way, in the September number of that bright and cheerful monthly, *Popular Gardening*, we find a picture of one of the bellflowers, *Campanula rapunculoides*. Through the kindness of the editors, we are able to give it here. The writer in *Popular Gardening* states that there are 280 distinct species. Roots of this plant can be obtained of Elwanger & Barry, of Rochester, N. Y., and others. It is certainly a very handsome vine; and even should it not yield honey like the one mentioned by friend King, it would not be a very great disappointment to the purchaser. As some varieties of the plant seem to be found in almost every part of the world, it would be nothing strange at all if the honey-producing bellflower could be acclimated, as friend King suggests. We will take good care to plant the seeds at the proper time, and report through GLEANINGS.

WHAT IT COSTS TO PRODUCE A POUND OF HONEY.

CAN THE QUESTION BE ANSWERED SO AS TO APPLY TO ALL LOCALITIES?

I HAVE read with interest what has been said in GLEANINGS with reference to the cost of production of a pound of honey. Mr. Doolittle and Mr. Heddon appear to agree as to the cost of production, while I see it in a far different light. It does not cost the same to produce a pound of honey in Illinois that it does in Vermont, as the cost of living is much cheaper here than there. I bought a large watermelon last evening for five cents; and when I was in Vermont, five years ago, they were sold there by the pound, and many garden vegetables were shipped there and sold at high rates. In Illinois, good corn lands are worth from sixty to sixty-five dollars per acre; and shelled corn at railway stations sold for 28 cents per bushel this summer. Mrs. Chaddock says, "Butter sold in my locality for six cents per pound," and I was there several years since, and bought, late in November, fine gilt-edge butter for ten cents per pound. Farm products are not worth the same all over the United States, and why should honey be?

A German grocery-woman yesterday said to me: "Some farmers brought in honey, and took about what they could get for it; you will never see them around with any more." Peoria has a population of 40,000. Many railroads center here, and bee-keepers think that is the place to sell honey. So they come from every point of the compass, driving many miles in light spring wagons, and could have sold honey faster and for more money, all the way, but they never tried to. They are like the man who went hunting rabbits, and saw plenty of deer, but would not shoot them, for he was not hunting deer but rabbits. They sold their honey for 8, 9, or 10 cents per pound, and took their pay in trade, or in part that way. Dealers say they tried to hold honey at 15 cents, but they could not do it, for many others were selling at 12½ cents. Every groceryman who handles it has a supply, and has bought choice white clover in one-pound sections at 10 cents per pound. We are not pushing our honey on the market, and are selling only to old customers in exchange for needed supplies. It appears to me to be folly to do otherwise; that is, to be paying out money for such things as honey ought to buy.

Mr. Harrison says when honey will not bring 12½ cents per pound, a man had better engage in some other business. If he has ability to produce honey he can make more in some other way. I consider this crop of honey that we now have, to have cost the most of any we have had, for this reason: I was sick during the busy season. I have not put on nor taken off a surplus box. Mr. Harrison has done the work, and his time is worth in the world's market more than mine. I know a bee-keeper who has a wife, two daughters, and a little boy eight years old. They all work in the apiary during the busy season. If he worked at his trade, which is shoemaking, the rest of the family would be consumers, when now they are producers. One of the brightest features in bee-keeping is this: It can be done at home, and members of the family can be helpers who could not earn a dollar in any other way. What can Mrs. Chaddock or Mrs. Axtell do at home on a farm, that will pay any better?

Peoria, Ill., Sept., 1886. MRS. L. HARRISON.

I think your point is a good one, Mrs. H.; and is it not also true that one can produce honey at a less price than another can? Friend Terry estimates that he can raise potatoes at a cost of 20 cts. per bushel, and allow reasonable pay to all hands employed in the work, and six per cent interest on the value of the land. He says, however, he thinks that the way many farmers work, and the number of bushels they get per acre, makes them cost fully 40 cts. In your closing remarks you touch on another point. Many people can keep bees and produce honey, who can not very well do much of any thing else. One of our agricultural papers said the same thing in regard to raising wheat. Suppose a farmer decides that he can not raise wheat for 70 cts. per bushel without losing money, what then shall he do—let his team stand in the stable, let the land lie idle, and sit around and talk over the discouragements of farm life? Why, it seems to me he had better keep at work—keep his teams at work and use his land, even if he gets but 50 cts. a bushel. Of course, he might raise something else in place of the wheat; but with bee-keepers, as you very fairly put it, are there not a good many who can not very well do much of any thing else? The remedy for breaking down prices, as it seems to me, is for some one to establish himself as a buyer, just as we have wheat-buyers and wool-buyers. Everybody in Medina knows that I am a honey-buyer; and if there is any honey to be "fooled" away, it generally gets into my hands.

EMPTY BROOD-NESTS.

FORMING NUCLEI, A LA DOOLITTLE.

IN GLEANINGS for July 15, page 563, in the closing of friend Hutchinson's letter he said: "Just stop and think a moment, friend R., and see if you can't "catch on." Now, friend R., it has been easy for me to "catch on" to the honey part, but nice worker-comb I can't "catch on" to. To try friend H.'s plan, I hived, about the first of June, 5 first swarms in as many hives having the brood-chambers contracted by division-boards, giving each swarm 5 frames having fdn. starters about one inch wide. Upon 3 of those colonies I placed crates whose sections were filled with fdn.; upon the other two I placed the queen-excluding boards, and upper stories filled with empty combs. From those colonies I got almost every drop of honey stored above, leaving the brood-chambers destitute of honey, but filled with brood, and that the finest lot of drone-brood you ever saw; but it was drones that I did not want, as they were not choice queens. I give the result of each individual colony:

Hive No. 1 contained a queen one year old; one frame was filled with worker-comb; one was two-thirds full of worker-comb, and the rest was drone. The other three frames were full of drone-comb from top to bottom.

No. 2 had no frame that was filled with all worker-comb; about worker-comb enough to fill three frames, queen one year old.

No. 3 contained a queen two years old, and not worker-comb enough to fill two frames; two frames were entirely full of drone-comb.

Nos. 4 and 5 were run for extracted honey.

No. 4, queen one year old; 2 frames full of worker-comb; one, half full of worker-comb and one a third full; two frames of combs, full of drone-comb.

No. 5, the queen was two years old; about worker-comb enough to fill three frames; no frame entirely full of drone-comb; sections were placed upon those hives before the bees were run in. Extracting-supers were put on as soon as the bees were run in.

DOOLITTLE'S PLAN OF FORMING NUCLEI.

This plan, from the pen of friend Doolittle, has been worth more to me than GLEANINGS has cost me in the last five years. I never take any risk in placing cells in queenless colonies. I place cells in the queen-nursery, and when queens are 3, 4, or 5 days old I make nuclei for them and introduce without the loss of a single queen. When I want to introduce a queen to a colony of bees, I take a nucleus from the old colony, introduce my queen, and when she has commenced laying I make the old colony queenless; and at the end of 24 or 48 hours I unite the two in a new hive. Yes, friend Doolittle, it is easy to tell when they fairly "cry" for and will accept any kind of a queen.

J. A. BUCKLEW.

Clarks, Coshocton Co., O., Aug. 5, 1886.

TEASEL AS A HONEY-PLANT.

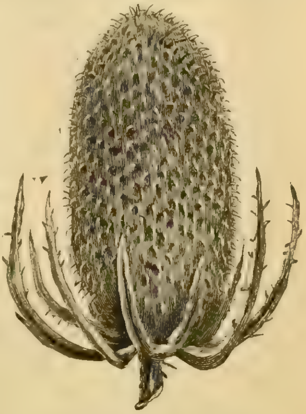
A REPORT FROM ONE WHO RAISES TEASELS AND KEEPS BEES AS A BUSINESS.

FRIEND ROOT:—Why do you allow such an engraving of a teasel to appear as you have in your A B C, and as has appeared in the *A. B. J.* I have been in the teasel-business for the last ten years, and now have twenty acres occupied with them. As you all know, I am a bee-keeper too, and it makes me just crawl to see such a botch of a job come from one of our leading periodicals. Inclosed find a medium teasel, ready for market. If you will have an engraving made right, I will gladly send a specimen. I am just harvesting my crop, and you will see some are not yet dry. I claim to be the only bee-keeper and teasel-grower to any extent. I tried one stock this season, and it made 48 lbs. of exclusively teasel honey.

C. M. GOODSPEED.

Thorn Hill, Onondaga Co., N. Y.

Good friend G., we are exceedingly obliged to you. The reason why you are so disgusted with the cut in the A B C book is, I presume, because it was made from one of the wild teasels growing in our vicinity. At the time it was made, I was in the habit of having engravings drawn from real specimens as far as possible, and I did not know there was so much difference in the appearance of the two varieties, especially as I saw the bees working on the wild ones. We now take pleasure in submitting to our readers a cut made from one of the heads you sent us.


HONEY-BEARING TEASEL.
Dipsacus fullonum.

We are especially glad of the report you make, of 48 lbs. from a single colony. If this could be depended on every year, I presume some more of us could well afford to have 20 acres. We should be very glad indeed of full particulars in regard to the cultivation of teasel, marketing the crop, etc.; and as you seem to be especially well prepared to give us the facts, we will gladly pay you for such an article. Very likely, however, the vicinity of large woolen-mills would be the most advisable locality for starting an apiary in connection with a teasel and honey farm.

FOUL BROOD.

SOMETHING FURTHER IN REGARD TO THE HOYLE THEORY OF THE DISEASE.

FRIEND ROOT:—I thank you for your remarks on a recent article of mine on this subject, which I regard as very favorable, considering the brief period you had in which to view the question from my standpoint. The more you look at the subject from my position, the nearer will our ideas about it agree. I may be wrong in some particulars; but, I hold, I am correct in the main; and if any think that, after viewing the subject from my present position fourteen months, I am now offering a theory that is easily broken down, why, they are welcome to try their hand in pulling it to pieces. I do not say that bacteria has nothing to do with the disease, but that it attacks only the larvæ when the larvæ are weakened, or ill from some other cause. In my first article on this subject I mentioned two causes from which larvæ become ill. I will now tell you of a third, which is, insufficient attention from the bees. It is nothing serious, though, if one does not mistake the cause, and kill a valuable queen. This state is brought on by the bees trying to care for more larvæ than they are able to care for. And sometimes it *seems* to be caused by stinginess in the bees during a honey-dearth.

It is my firm belief, that this same bacteria is everywhere, and that it wants only a favorable opportunity to break out in any apiary. Friend R., if the people were to stick to the old idea about this disease, you would be sure to suffer, and unjustly too. How? Why, in this way: Say you effectually rid your apiary of the disease, and sold some bees to a party who had never had or seen any of the disease in his locality; and in that year there is a honey-dearth, and only a little inferior honey-dew is to be had in his neighborhood, in which case he is apt to have the disease, as anybody is with such a honey resource; nevertheless, he would blame you for it, and so would all others who hold a like view of the disease.

I can not afford the time it takes to write up this subject, and I would not have commenced it yet awhile, but I thought it might benefit you, and no doubt it would if you would only believe in it. There is one thing of which I am certain; and that is, that it will benefit you in the future.

Mobile, Ala., Sept. 22, 1886. GEO. H. HOYLE.

Friend H., although I can not entirely agree with you in regard to the origin of this disease, it occurs to me to mention a few facts favoring your position. You know we have for some time been searching to find whether blight and similar troubles in the vegetable world are caused by disease or by an insect-enemy. Well, for some time it has been supposed that blight in celery was produced by an insect, because this insect was found on the plant when the blight appeared; but Mr. Rawson, in his recent work on celery culture, says he can not agree that the insect is the cause. He says the cause is mainly want of water, as the celery is a water-plant, and many others have decided the same way. The blight may, however, be produced by an *excess* of water, and the cause he gives is, lack of vitality in the plant caused by either extreme—too much or too little water. Now, the reason why certain parties think the insect is the cause, is because it is a fact that the insect makes its appearance about as soon as the blight starts; but he says the insect simply follows, and has nothing to do with the origin of the trouble. You know this has been decided to be the case with the moth-miller; and even now, where modern bee culture has not shed its light, there are people to be found who think that the moth killed their bees. Peter Henderson recommends, as the best remedy against the attack of all insect enemies, making the plant push ahead with such vigor that it lives in spite of the insects. Who has not noticed how the bugs will pitch into a *feeble* squash-vine, letting the rank, strong-growing plants almost alone? And so it is with most of the insect-enemies of the vegetable kingdom. Now, then, can it be true that the spores of this disease, foul brood, get a foothold only where the brood is in a favorable state, from some of the causes you mention? In that case, powerful colonies would be found less affected than the others, would they not? But, if I am correct, facts do not corroborate this. Am I not right? It is possible, however, that all the colonies in the apiary, strong and weak alike, gather something that is injurious to the brood, or enfeebles it, and, as a consequence, foul brood gets a foothold; but the facts, so far as I am acquainted with the disease, are, that certain localities are absolutely free from it; but when it once gets established in these localities, it seems to be hanging about almost ever afterward.

WHAT AILS THE BEES?

IS IT A POISON, OR IS IT A DISEASE?

FRIEND ROOT:—With your permission I will tell my tale of woe. I had fifteen good strong colonies when swarming time was over. They did very badly as to honey-gathering. It rained all the spring. They could gather only enough honey to raise brood. Out of the 14 colonies, I have not taken 10 lbs. of honey About three weeks since, my bees began to die. I could find a few dead bees around the entrance for several days, then they began to die by the thousands. In the morning I could scrape up a pint on the alighting-boards. I had only two colonies affected badly. I sulphured them, and the rest have nearly or quite quit dying. When they were at their worst they would come out of the hive pellmell, sputter around on the ground, and "pass in their checks." Well, I will tell you I was in trouble. I read my A B C, got an armful of GLEANINGS, and read nearly all night, trying to make it out foul brood, but gave up in despair and did not make it out at all. Can it be something that they get that poisons them, or is it some disease? It is not foul brood, as it is the old bees that die, and not the brood, as the combs are clean and nice; but the quantity of dead bees created such a horrid stench I was sure it was foul brood for a while. Well, it is not on account of queens, as some die at all the hives, and I have several queens I bought this year, some from Louisiana and North Carolina, and one from Thomas Horn; and a few die at all of these, but not many. You can put me in Blasted Hopes if you please, but I am sure it is all for the best, though I can't see where it comes in. I am discouraged, but will keep on trying another year, if the Lord wills it.

Loudon, Tenn., Sept. 22, 1886. W. K. JAMES.

To be sure, it is not foul brood, friend J., and I am inclined to think that, from your description, it is no disease at all, but that they have found something that poisons them. I judge so, from the sudden way in which they began to die in such numbers, and from the fact that it is mostly confined to 2 colonies. Hasn't some one near you left Paris green about where it might get mixed with something sweet? Or, has not some poison, with an admixture of sweet, been left around where the bees can get at it? We have had a few such reports before, but I believe we never found out just how it came about. I would by no means sulphur the bees under such circumstances, for this can accomplish no more than killing the queen. If I had such a case I would confine the bees to their hive, and feed them on sugar syrup. If that stopped it, I should be sure that it was caused by something they gathered. Under some circumstances it might be well to take all other combs and give them new combs, and feed as above. I think this would surely stop it, and you would save your bees.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER X.

EXCELSIOR.

IN recording the events of the summer it was said that one swarm had gone to the woods. It was not one of the first swarms, still it was a fine large swarm. It came off, was hived as the others had been, and all appeared to be going nicely; but the next morning the children were surprised to see the swarm come out. They called their father from his study, but he reached the yard merely in time to say good-by to the departing swarm as it started for the woods. Tommy ran beneath it for half a mile or so; but when it got fairly under way it left him. Mr. Meek stood at the front gate and watched Tommy as he ran. He thus formed a pretty correct idea of the direction the bees had taken. Almost one and a half miles distant, in that direction, a neighbor was building a new barn. The men were now at work upon its roof. Mr. Meek saw that, if the bees continued on in the course they had taken, they would pass directly over that barn. He and Tommy drove over to the barn and inquired of the workmen, who told them it did pass directly over the barn.

They then concluded to examine a piece of woods that lay in its course only a little further on. They were going through the woods in the line the bees were on, examining every tree, when they found them in the hollow of an old snag of a tree, not very far from the ground. They spoke to the owner of the woods, who said they were welcome to cut it. They returned home, and, after dinner, took the ax and a new hive, and proceeded to the woods. The farmer who owned the timber came to their help, ax in hand. Soon the tree was cut, and the bees successfully hived again. They expected to let them remain until dark, when all that were out would have returned and found the hive, when they intended to return and move them to their apiary. The owner of the farm offered Tommy four dollars for it if it remained in the hive; but if it should go away, he would give up the hive and pay nothing. Tommy accepted his offer, and Mr. Meek directed the farmer how to remove the hive to his house, which was not far distant. He also gave him advice in regard to caring for them.

As the honey season was now ended, the firm looked around for a market in which to sell their crop. Mr. Shaw, the grocer who purchased last year's crop, was ready to take all the comb honey at the price paid last year, fifteen cents a pound. Extracted honey was something new to him, and he did not know what success he would have selling it. He gave the children two dozen glass jars, holding three pounds each, telling them to fill these and he would try what success he could have selling them. He paid them ten cents a pound for what he received.

One day Jane and Tommy took a quantity of extracted honey in their father's buggy, and drove around among their friends and neighbors, offering it for sale. They succeeded so well that they went out for several days. As they were introducing a new article they offered it cheap, asking only ten cents a pound for it. In a little time they had sold all their extracted, except fifty pounds, reserved for home use. They also reserved forty pounds of comb honey. The rest was sold to Mr. Shaw. Their books were then posted, and showed as follows:

Bought for the apiary:

10 hives in the flat, 85 cents each	$8.50
1000 sections	5.50
14 lbs. of foundation	6 00
Paint, oil, and nails	2 00
Freight	1.25
Honey-extractor and knife	3.00
	$26.25
Cash on hand from the sales of last year	29.40

Taking from this the expenses noted above, there was left $3.15 in the hands of the firm. Their cash account for this year shows as follows:

One colony sold	$ 4.00
450 lbs. of extracted sold	45.00
510 lbs. of comb honey sold	76.50
Beeswax sold	1.50
	$127.00

Add to this the $3.15 in the hands of the firm, we see that, at the close of the year, the firm had $130.15, and 13 colonies of bees.

On looking over the supplies on hand it was felt that $30 15 would provide all needed supplies for the coming year, and that the firm might withdraw the $100 and apply it to something else. The great question now with the firm was, What shall we do with this money? Sometimes it was proposed to loan it, or to place it in the bank; other times they were thinking of investing it in a pony; at other times they thought they would buy an organ with it; but at length, by the counsel of their father and mother, they made a very good and sure investment of it.

The congregation Mr. Meek served esteemed him very highly, and contributed liberally toward his support; but they were few in numbers and limited in means, and therefore the salary paid him was no more than sufficient for his support. As his children grew up he felt that soon they must go from home to school, or else be satisfied with the education obtained in the common-school. Having received a thorough education himself, he was anxious that they should enjoy as good opportunities as he had. But he failed to see from whence the money would come to pay board and tuition when they should leave home.

After they engaged in keeping bees, and their efforts seemed likely to prove successful, both he and his wife had hopes that the money soon to be needed might come from this source: so when the firm had $100 to spend, the parents proposed that it be spent in sending Jane to the school in the neighboring town. Tommy readily agreed to this; and as the school had opened, no time was to be lost. That very afternoon the whole family drove to town and came back without Jane, who immediately entered upon her duties as a pupil in the school. She had diligently improved her advantages in the public school, and at home; and after being examined by the teachers in town she was placed in a class which would finish the course of study prescribed in that school in two years. A boarding-place was found for her in the family of a friend; and as she remained only from Monday morning until Friday night, said friend charged but $1.50 a week. The bill for tuition was $6.00 a term, so it seemed probable that the money earned by the busy bees would pay all her school-bills for a year, and there would still be some of it left.

Tommy entered the public school at home, and pursued his studies diligently. Still he was lonely without his sister, and it was always with a glad heart that he left school at recess on Friday evenings, and hastened home to bring his sister from town. Those drives home were very pleasant, and each longed for Friday to come. Tommy told Jane the news of his school; she listened with pleasure to him as he related all the little school incidents which had occurred among the boys and girls she knew so well; and in return she gave Tommy the news about the town school, which interested him, especially in view of the fact that he intended to go there himself, if spared.

Monday morning Mr. Meek usually took Jane back to town, while Tommy went to his own school; or, if he could not, this work also devolved upon Tommy. It would be difficult to find two happier children than they during that winter; and one source of their happiness was the thought, "Jane is being educated at our expense."

Their attention to business had made them thoughtful beyond their years. Of Tommy, people often said, "What a manly little fellow he is! and what an idea of doing business he has for one so young!" Jane was often called a thoughtful child, and was commended for her quiet, ladylike ways. It is not known how much their doing business for themselves contributed to make them the children they were. It is very probable that, without their father's aid and counsel, their bee-keeping would have proved a failure. But still that aid and counsel was given in such a way that Jane and Tommy felt they, and not their father, were the real owners of the apiary.

Recently the firm had subscribed for a periodical devoted exclusively to bee keeping. They felt sorry they had not done so sooner, as in it they found so much instruction in the art. Through it they learned of books which they felt certain would well repay them if they should study them, and they determined to purchase them as soon as they were likely to have the time to read them. Jane's school would be in session eight months, and then there would be a long vacation;, and, fortunately, that would come in the season of hurry in the apiary. After she had spent two years in that school the children would change places —Tommy would go to school, and Jane would tend to the apiary. After both had finished the prescribed course in the town school, if more instructions were desired they must attend a college. For years their parents had been hoarding a little sum of money, and adding to it from time to time in hopes that they might give their children the advantages of a collegiate education; but until this business of keeping bees seemed to prosper, they could see no prospects of their hopes ever being realized. Hope had now sprung up in their breasts, that one day their children might be enrolled among the graduates of some good college. If their bees should increase steadily for the four years the children would be in the town school, they would have quite an apiary; and could not the children then attend college, while a man hired for that purpose would care for the apiary under the direction of Mr. Meek, and the honey-crop be sufficient to pay the expenses of the apiary, and also do something toward paying the college expenses of the owners? It seemed probable to Mr. Meek that such a result might be attained, especially as the long college vacation would come at a time when the children's help would be very useful in the apiary.

Will the hopes of these parents ever be realized? We can not tell. Will their children ever receive the expected and desired education? We see no reason why they should not. So far their apiary has made a steady growth, and has been remunerative. This may continue, or a disastrous winter may leave them only empty hives. When we look at what has come out of that old nail-keg, it is difficult to tell what might still come from the same source. Here, then, we will take our leave of the firm of Jane Meek & Brother.

We feel almost sad to think of for ever bidding adieu to Jane and Tommy; yet with the correct principles they have so far received in life, we feel sure they will not only succeed in bee culture, but that they will succeed in being ornaments to their home, to their neighborhood, and to their country. Some may object to this little story, because it gives too bright a view of bee culture as a business; that is, the progress seems to be more steady and sure than we find it in real life. To which I would answer, that the writer has taken a couple of *good* children to start with; and a couple of good children, carefully instructed and directed by Christian parents, do almost invariably succeed in whatever they undertake. Note, also, that the end and object of their prosperity was not fine clothes; it was not a pony and carriage—not even an organ; but the funds were to be used to complete an education so well begun. Could it well be otherwise than that God should smile on such an undertaking, and bless those young lives? In fact, is it any thing more than working out the promise given in the first Psalm? May God grant that many homes in our land may have just such young people as Jane and Tommy! And may such men and women as they make when grown up be found ready, when the times demand them for the safety of our nation.

THE GREAT MORAL PROBLEM.

MRS. CHADDOCK TELLS US OF SOME OF HER LONGINGS AND ASPIRATIONS.

I WANT a boy; I want two boys; I want three boys; I want four boys; I want five boys; I want six boys: I want a dozen boys. I want to take them when they are six years old, and keep them till they are fourteen or fifteen. I want to take a new one every year, so that, when they begin to graduate—*i. e*, leave me and go out into the world, they won't all go at once. I want these boys to work for me, and for their work I want to give them their board and clothes. I know that there are thousands of boys who do not have good clothes—not regular food nor decent clothes—and they would be much better off out here on the farm than they are in the large cities.

"But, why don't you get them then?" you ask. Because I have a conscience a mile long, and it won't stretch nor bend for any thing. Now, if I take these boys to raise, my conscience will force me to send them to school every day as long as school lasts, and I can't afford to board and clothe and educate other people's children, in return for what work they can do for me "between whiles." I can hardly afford to send my own children to school all the time. But if I have one hobby that I think more of than any other, it is that all children should be educated. When mothers talk to me with tears in their eyes, and say they can't send their girls to school, I tell them they can if they really want to. I tell them they can do without tea and coffee, lace and ribbons, and quit trying to put on style till after the children get their education. I want people to work and earn money, but I hate to see people looking through colored glasses all their lives; and uneducated people wear colored glasses as long as they live. And with this conscience of mine, and these educational views, you will see why it is that I can not have my twelve boys, but must go on taking all my own steps till I almost drop with weariness, while in all great cities are those very boys going to waste for want of the food and clothes and right principles that I could give them just as easily as not. **MAHALA B. CHADDOCK.**

Vermont, Ill.

Why, my good friend Mrs. C., it surprises me somewhat to hear that you have been studying on this same problem that has lain so near to my heart all the years of my life; and of late, boys have been coming to me, begging for something to do; yes, and guardians have been bringing them to me, and beseeching me to take them under my care and tutelage. I, too, like yourself, love to make every thing pay; but we might as well give up at the outset in thinking of making a boy pay his way when six years old, and go to school. He might pay his way at home with his father and mother, but he can not with anybody else; or even if he could, who would want a boy six years old to pay his way? May God help us when we get tempted to bend every thing to money-making to such an extent as this. It is true, however, that a boy might earn enough from 15 to 18 years of age to make up for what he did not earn when from 6 to 10 years of age; and this is often done by adopting boys. But there seems to be a good deal of unpleasantness on both sides, so I don't see how it can be done on a large scale. There is no good substitute for flesh-and-blood fathers and mothers. Boys of 12 to 15 may be found who can earn enough nights and mornings, by saving steps and otherwise, to pay for their board. I say they *can* earn enough nights and mornings to pay for their board; but the sad part of it is, that a good many of them *won't*. Others will for a time, but after a while they get tired of it. We pay such boys from 6 to 7½ cts. per hour, according to their value; and by getting up early they can work three hours in the morning, and perhaps two at night. This would give them from 30 to 37½ cents per day, and such boys can generally find board and lodging for this sum. During a vacation, however, by putting in ten or twelve hours a day, instead of five, our young friend may be able to earn enough, after paying for his board and lodging, to clothe himself decently for the year. But this gives the boy no time for play or amusements, and little or none for reading, aside from what he gets in school; and with some boys this seems pretty hard. Others, however, who regard their choring and other kinds of work during the five hours as recreation and amusement, will get along very well, and this latter class as a rule are the boys who make our great men. Almost every boy we get, sooner or later wearies of being messenger-boy for the establishment. I did find one boy, however, who said he enjoyed the position, because it gave him exercise, both of body and mind; of body, by seeing how quickly he could execute commissions off a mile away or such a matter; of mind, by cultivating his memory by making it a study to remember every word that was told him, and to discharge every commission faithfully. That boy is climbing the ladder, and I expect to see the day when he is *away up*. I hardly need tell you that he is a faithful, earnest Christian, and when he works to please others he works with the thought in his heart that it is all for the Master's sake.

REMEDIES FOR BEE-STINGS, ETC.

ALSO SOMETHING IN REGARD TO DOSING WITH PLANTS AND HERBS IN GENERAL.

ON page 667 and 668, GLEANINGS for Aug. 15, the request is made for a temperance remedy to remove the serious effects of bee-stings. I have heard the common plantain-leaf highly recommended. The juice, or warm tea, is to be taken internally, and the affected part may be bathed with it, or bruised leaves applied. A temperance friend told us of a lady whom he found in bed, very sick from the effects of a sting (I think it was a bumble-bee sting). He gave her a tablespoonful of the juice, obtained by pressing the bruised leaves, and in a short time she was better, and able to get up and get dinner. I do not think any bad effects could come from its use, as it is common to cook it for greens.

We have three stands of bees—two black and one Italian. We got the queen from you in June, 1885. Our main honey-crop generally comes from white clover; and as it was mostly over they did not gather enough for winter, and we had to feed them. We did not get much surplus honey this season, and no swarms till Aug. 26, and then the Italians cast a swarm when we thought it was entirely too late in the season for bees to swarm. My husband gave them brood frames with fdn. starters, as he did not have any frame of brood handy to get. The next morning they came out and went to the woods in a hurry. They did not build a bit of comb. The old stand is in a chaff hive. The bees are gathering some pollen, but that seems to be all they can get now. **M. E.**

Boonville, Ind., Sept. 11, 1886.

I have given the above to illustrate what seems to me to be a very common fallacy, not only in regard to bee-stings, but for diseases in general. The afflicted person in this case took a table-spoonful of the juice of plantain-leaves, and soon got up and went to her work. Now, I am well satisfied that she would (or, at least, *could*) have arisen and got dinner, without any juice from the plantain-leaves at all. A table-spoonful of the juice would not affect a well person one way or the other. The proof is already given in the fact mentioned, that plantain-leaves are often used for greens. The greater part of all these plants and herbs are harmless. A person might drink the juice or eat the leaves in almost any quantity, without perceiving any effect whatever; and I am inclined to think the different kinds of herbs used in medicine—at least the greater part of them—produce absolutely no effect whatever. It is true, we have some plants that are poisonous. In that case a small dose produces some effect on the system; but how often does it happen that the effect produced has any thing to do in making the disease better or worse? A dose of lobelia tea given to a person with a bad cough may produce a sickness at the stomach, enough to stop the cough. There is sense and reason in this; that is, the cough is diverted, or stopped for the time being. I do not think the poisonous plant accomplishes any thing further than this. You may say the cough does not commence again after the influence has passed off. To which I reply, that if you by a powerful mental effort keep back the cough—that is, do not yield to the inclination to cough, the inclination will, after say fifteen or twenty minutes, cease of itself. The result accomplished is, as I understand it, the same in both cases. May be I am wrong in doubting whether catnip tea has any influence whatever in easing the pains of the little one; but I should like to see the matter thoroughly investigated by competent medical authority. Very likely the dose gave relief; but may it not be that it was the sugar and milk and water, instead of the catnip? I should like to see the whole matter of doctoring with herbs and plants sifted to the bottom. No doubt they are harmless; but is there any virtue in them at all? We tender you our thanks all the same, good friend E., for suggesting a temperance remedy for bee-stings; and while I am about it, permit me to seriously doubt that even the whisky had much if any thing to do with the recovery. People have serious times with bee-stings every little while; but they almost invariably recover after a little, and the recovery is, as a matter of course, almost as sudden as the approach of the disagreeable symptoms.

SUNSHINE IN OUR HOMES.

ALSO SOME SUGGESTIONS FROM FRIEND TERRY IN REGARD TO GASOLINE-STOVES.

FRIEND ROOT:—In my last letter I spoke of pure air in the working part of the house, where our wives and daughters spend much of their time. Of course, it is needed in the rest of the house also, particularly in the sleeping-rooms. We should take pains to have every part of the house well ventilated at all times. Like you, I *will* have fresh air. It is too blessed a gift to be despised because it costs so little. Many a time have I come in from active work outdoors, in the winter, feeling vigorous and clear-headed. Very soon I would feel right the reverse. Then open go all the doors and windows, so the wind can sweep through for a few minutes, changing the air almost entirely. My wife and daughters being in the house all the time hardly notice that the air is becoming impure, it comes on so gradually.

But there is one point I wish to bring out at this time which is fully as important as good ventilation; and that is, plenty of sunlight in our homes. It is time more were written on this subject, as it is getting to be so fashionable to shut out every ray of sunshine from our dwellings, with blinds and thick curtains and shades. Blinds are nice, and so are shades, if rightly used, which would be to shut out the sunshine during the middle of the day, or when the direct rays shining on us would be unpleasant. When they are used to keep rooms almost as dark as night, for fear of fading the carpets or furniture, or for fear the young ladies may get a little color on their hands and faces, then their use becomes an abuse. Is a little color in the carpet of more account than rosy good health? The exact reason for it, and the exact way in which sunlight has a sanitary influence, is not known yet; but the fact is acknowledged. Dio Lewis once wrote, that at the rear end of his parlor it was not so dark but that one could easily see to read fine print. At that point he put a bracket on the wall and transferred to it a plant from the window. In four days it looked sickly; in two weeks it was yellow; in five weeks it was apparently dead. Another plant was placed on the center-table, about in the middle of the room, and at the end of five weeks that had lost its healthy color, and was evidently failing. "The girls in our parlors," he says, "who were not out more than an hour or two a day, on the average, when the sun shone, were as pale, yellow, and sickly as the plants, and we think for the same reason—a lack of full strong light." The same writer also says that he has cured many cases of rheumatism by advising patients to leave bed-rooms shaded by trees or piazzas, and sleep in rooms constantly dried and purified by the direct rays of the sun. Doubtless shaded houses are responsible for much of the pale, feeble, nervous, and neuralgic condition of wives and daughters. I once heard a celebrated lecturer on home surroundings say in substance that our homes should be hid among trees, so as to be scarcely discernible to the passer-by; that the home should be a nest, so to speak, and hid away as the bird hides hers; that nothing is more unhomelike than a fine building standing out in full view of every one. This is all very nice; but the bird stays hid away in her nest for only a short time. The most of her life is spent in the broad sunlight. Our homes where we spend so much time can not be perfectly healthy, and be hidden away from the great source of all life and heat. Trees should never stand so near our dwellings that the sun can not shine for a part of the day into every window that it can reach. If we allow them to we must not be surprised if we are troubled with inflammatory and nervous diseases. And it will be the same, of course, if the sun is kept out with blinds and shades at all times. Such is the great law of health; and if we violate it, sooner or later the penalty will have to be paid.

Your home, like mine, friend Root, stands out where the health-giving sun can shine in at every window, and I have no doubt your wife lets it in, in liberal doses, just as mine does. As for the carpets, I tell her to let them fade; that it is better than faded children. In the morning my wife throws open the bed in our room, and the blinds and curtains on each of the four large windows, and lets the sunlight stream in. I can hardly get her to open up the parlor as much, in the summer time; but then we do not sit in there a great deal. If I remember rightly, your house is built on something the plan of mine, so as to give as great a chance as possible for light in each room. If I count correctly, the carpenter had 18 corners to turn in boarding around the outside of the lower story of our house. This costs more than a more square style; but it can be made more healthy and pleasant. We like shrubs and flowers in abundance, but will have no trees where they will keep the sun from any window. We have blinds on them all, but we try not to make a bad use of them. One need not live directly in the rays of the sun. It is enough if the sunlight comes into the room freely during at least a part of every pleasant day.

Seeing you press me, friend Root, for my opinion about gasoline-stoves for kitchen use, I must say that I think there is some risk in their use; very little, perhaps, if they are always properly used; but there is the rub. "To err is human." A good lady living in my town wrote to her insurance company once for permission to use gasoline in her house. The reply was, "If you wish to take the chances of becoming an angel suddenly, we do not object." One thing is certain: There are accidents from their use almost daily, while such an oil-stove as the Monitor I believe to be perfectly safe in any hands, if a high grade of oil is used. The manufacturers assured me they had never known of a single explosion, although they have sold hundreds of thousands during the last 12 years. From the make-up of the stove one can readily believe this. Therefore I bought a Monitor oil-stove instead of a gasoline. It is a very little more trouble, as one has wicks to see to; but it does its work well. And then we all want oil in the house any way, to burn in lamps, and it's an unnecessary trouble and expense to have two kinds of burning-fluid. I presume you keep them to sell, friend R., and so would not think of this. With me it would make quite a difference. In all probability you will never have any accident from the use of gasoline; but you *may* have, and I think you are more likely to have than from the use of oil. But perhaps I am over careful.

Hudson, Ohio, Sept., 1886. T. B. TERRY.

Friend T., your suggestions in regard to sunlight bring to mind my recent hobby of greenhouses, cold frames, etc. For several years back, for some reason unknown to myself, I have craved sunshine. When I am reading or writing I am never so happy as when the sun happens to strike on my bald head; and when I felt so strongly drawn toward the subject of greenhouses a year or two ago I could not explain it, only I knew that I felt happy on a winter's day to get right under the full blaze of God's great luminary. Is it not true, that Nature herself often prompts us to these queer likes and dislikes? I want to be in the sunshine with my coat off—yes, hat off too; and if it were not for the appearance I should make in public I do not know but that I would go bareheaded a great part of the time in summer when outdoors.—In regard to the many angles which you speak of in our houses, I used to object to it, often quite vehemently; but since your suggestion, that these angles give us more windows for each room, and windows facing toward the different points of the compass, that we may have more air and more sunlight, I begin to feel quite reconciled to the idea. There are five different openings in our bed-room, for the entrance of fresh air; and air is passing in and out of all these openings the greater part of the year. My wife, like your wife, throws the bed-clothing open to the breeze and sunlight every morning of the year; and the unusually good health enjoyed by the household demonstrates that the practice is certainly not an injurious one.—In regard to coal oil and gasoline, I thank you for having presented the subject to us. With my wife's management I have no fear at all of any explosion; but Huber has ventured to undertake to manipulate our gasoline-stove a good many times. Once he turned the faucet of the large can that holds our supply of gasoline; but it was kept in a small stone room on purpose to avoid accidents, so of course he did not do much harm. He has, however, once or twice turned the gasoline on when the stove was not lighted; and had we not opened the doors and windows of the room where the machine is placed, until the fluid could evaporate and blow out, we might have had a serious explosion. I begin to think, from what you say we had better make a change at once in our household.

MR. THOMAS HORN.

WHAT HE IS DOING, AND A WORD OF ENCOURAGEMENT FOR HIS CREDITORS.

I PRESUME most of the sufferers by the above-named gentleman are aware that he does not answer letters, make any reply, nor do any thing, unless he is absolutely obliged to. Well, the friend who writes below suggests a means of making him (and not only Mr. Horn but every-one else who goes into a like "speculation") attend to business.

Friend Root:—As I wrote you some time since in regard to my transactions with Thomas Horn, I will now finish it after receiving so many promises but no bees. I made a sight draft on Mr. Horn, and inclosed the same with all of his letters to me, and sent them to an attorney in Sherburne. I also wrote Mr. H., that, if he did not pay my draft or send the bees, I would report him to the postoffice authorities. He at once sent 6 frames of empty comb. They may have had some brood in when he started them, but none when I received them. There were about two pounds of live bees when they arrived, and one pound of dead ones. He sent one queen and four queen-cells about ready to hatch. I put them in two hives and gave a frame of brood and honey to each, and have fed ever since. That was August 1st. Now I have two fair swarms that I think I can winter; they are finely marked Italians. If Mr. Horn had sent in May, when he contracted to, I think all would have been satisfactory. M. MCDANIEL.

Ft. Recovery, O., Sept. 21, 1886.

I did know that, under certain circumstances, the U. S. postal authorities would refuse to deliver mail to parties when engaged in swindling operations; but it didn't occur to me until just now that we could oblige such men as Mr. Horn to give some kind of a civil reply to complaints by the above process. Perhaps some of you may think I am hard and severe; but we have waited patiently for Mr. Horn, and have published his promises and kept back complaints by suggesting that he would fix every thing in time, until we have received the censure of many good men. I may add, that Mr. Horn has secured the claim we have on him personally, to be paid some time hence. Now let him make arrangements so as to secure the rest who have sent him money and don't get any reply, or take the risk of having his work during the past season submitted to the postal authorities. I am inclined to think that the amount he is now owing is not very much, and that he could, if he would, fix it all in the way I have suggested. Some of the friends may think, as I have already suggested, that I am getting to be terribly severe; but, my friends, we wish to have every bee-man who reads the journals understand that he had better have a severe attack of the yellow fever or Asiatic cholera than to go deliberately into another Burch or Horn operation and hope to get through it "scot free." "The way of the transgressor is hard," and it is our duty to see that it remains hard—so hard, in fact, that those who are tempted may conclude it will not pay, and give it up, even before they start out.

OUR BEES AND OUR NEIGHBORS.

SOME SUGGESTIONS FROM FRIEND HEDDON IN REGARD TO THE PRINTED LEAFLETS TO BE SENT TO OUR NEIGHBORS WHO ARE NOT BEE-KEEPERS.

READER, please turn to page 619 of this volume, and read in numbered paragraphs friend Cameron's address to his neighbors—an appeal intended to enlighten, and make peace and friends. Also please read friend Root's foot-notes to the paragraphs in question. Now turn to page 695, and read what I have to say near the bottom of left-hand column; also the editor's foot-notes again, and you will then understand the motive which inspires these remarks.

I will now endeavor to pick out and comment upon the sections that I believe will harm any bee-keeper who presents them to his neighbors. If all "neighbors" were like unto the spirit of the originator of the paragraphs in question, the case would be far different; but wise men take the world as it is; and while doing their part to reform the bad, and to bring the morally blind up out of darkness, they yet see the necessity for firmly and rigidly, though kindly, *demanding* all that belongs to them.

THE OVERTURE.

As it is so very rare that bees enter houses and "sting the baby," or any one else, unless pinched, I would have omitted this needless scare.

Section 1 suits me.

Section 2, I would have omitted the last line, as the one preceding it is true, and covers all the ground in this case, and this last line is needlessly prejudicing against the character of our business.

Section 3 is good.

Section 4 might have begun with, "If, by negligence, the bees have once gotten into your kitchen," etc. Let the neighbor understand that the fault is *his*, not *ours*. We can't control the whereabouts of our workers, and yet we consider our business legitimate.

SECTIONS OF DEFENSE.

Section 1, good.

Section 2, tiptop.

Section 3. Never use this section, unless some one in your vicinity has made such a charge. Never put yourself on the defensive until you are attacked. This is a characteristic of the sheep, and is the cause of so many "sheep-dogs."

Section 4. Don't use the word "nuisance;" say, "an annoyance." When an annoyance reaches the "nuisance" point, it becomes removable by law, and I claim that bees never are a nuisance, and never will be, except where they are kept so close to the rightful passageway of others that they use their stings in defense of their homes.

Don't say a word about "poison." This puts the public—the good, the bad, the jealous, the revengeful, and the half insane, all in mind of a secret way to injure, to get up a commotion, and to see what they can do. The neighbor who would lay out poison for bees should be imprisoned; and when you suspect such action, you should spare not money, time, nor energy, to detect and punish the heinous crime; and one of the strong points in detection is not to have your suspicions detected by the villian.

I may be in error; but I firmly believe that circulars printed verbatim from friend Cameron's sections on page 619 will work an injury in any neighborhood where distributed. I further believe, that, with a proper correction, such circulars would do much good in communities where trouble is brewing.

JAMES HEDDON.

Dowagiac, Mich., Sept., 1886.

Friend H., your points are well made; and when we print a new lot of these leaflets we will modify them as you suggest. I think, however, you exaggerate the evil you seek to remedy. Occasionally there are people who will, perhaps, be led to do these very things because our friend has suggested them. It is like the lady who told her children, on going away, not to put *peas in their ears;* and when she got home, every one of the lot had gone and done the very thing she forbade. I do not think, however, there are very many people who would be led to poison bees because they are reminded that such a thing is possible.

HINTS TO A B C SCHOLARS ON WINTERING.

THE IMPORTANCE OF FEEDING, IN ORDER TO GET YOUNG BEES.

IT is probably true, that the wintering problem has been gone over so often that the subject has become stale—at least to the apiarist who always winters successfully; but to a large number of A B C scholars who have not learned how to winter their bees every time, there is one thing they ought to know that has been left untold.

On page 272 of the A B C book, friend Root says, in speaking of the wintering problem: "The main points are, a brood-apartment closely packed with bees, and plenty of good sealed stores. With these two conditions alone, the bees will generally winter all right, even in a hive made of inch boards." Now remember, there is not a word said about the age of these bees. Friend Doolittle says, in his comments on the A B C book, in speaking of the wintering of bees: "Why not feed the whole 20 lbs. in one or two nights, if they have plenty of comb room and plenty of *brood* and *young bees?*" Friend D. hit the nail on the head that time, but he did not hit hard enough. If friend Root had said, "A brood-apartment closely packed with *young* bees, and plenty of good sealed stores," then he would have hit the nail fairly and squarely on the head, but he left out the one essential word.

Now, I do not pretend to understand bee-keeping as well as some bee keepers do, neither do I wish to find fault with my teachers; yet there is one of my teachers called Experience who charged me at least $300 for her trouble; yet I suppose her teaching is the cheapest, after all. What I am trying to get at is this: In many localities, on account of drought or grasshoppers, the bees do not gather any honey after the first of August; consequently the queen soon stops laying, and at the beginning of winter there may be a hive full of bees; but they are old, and their span of life is nearly run. Some of them, probably the larger portion of them, will live through the winter; but, mark my words, they will dwindle to nothing in the spring. In order to show the point clearly, I will give you my experience with six colonies during the past winter. I have chosen this number for the reason that they were apparently good strong colonies on the first of September, each one having a good queen as near like the other as two peas.

For convenience we will number them 1, 2, 3, 4, 5, and 6. About Sept. 1st I began feeding Nos. 1, 2, and 3, about one pint of granulated sugar syrup to each colony every night, and kept it up for about three weeks. After feeding a few days, the queens began laying; the old bees went to work gathering pollen (of which there was an abundance); and when winter came these old bees were mostly worn out and gone; but I had three hives full of *young* and healthy bees that were able to and *did* stand the rigors of winter; and when spring came there was hardly a dead bee in the hives. Of these three colonies, Nos. 1 and 2 were well protected. No. 3 was in a single-walled hive with chaff cushion in the upper story, yet I could see very little difference in the wintering of the three colonies. Nos. 4 and 5 were prepared just like Nos. 1 and 2, with the exception of the feeding; No. 4 was protected, while No. 5 had no protection whatever. These two colonies lived until spring, when they commenced to dwindle—the one that was protected dying first, yet they left in each hive at least 30 lbs. of beautiful thick honey.

No. 6 was in one of A. I. Root's chaff hives; and in four weeks' time, beginning about Sept. 15, they were hauled a distance of 120 miles, attending the fairs; and during 8 days of that time they had all the work they wanted to do; and as they had done nothing for six weeks past, they worked with a will; the queen laid with a will, and they came through the winter with a will to go to work again. This colony was the only one that showed any signs of dysentery, caused, I think, by the honey they gathered at the fairs.

Now, friends, do you see the point that I am trying to show you? With us last season, the grasshoppers were so thick after the middle of July that they nipped every bud and blossom as soon as it appeared, so there was no honey for them to gather at any time in the fall; and, no difference how much honey the bees had on hand, the queens stopped laying soon after the honey stopped coming in.

You see, from what I have said about these six colonies, that protection seemed of little account, and you might think that I do not recommend it. It will certainly pay to protect the bees well, if for no other reason than that the protected ones will not consume as much honey as the ones that are not protected. Sometimes we see that nearly all the colonies in a large apiary will dwindle to nothing in the spring, and yet there will be from one to a dozen that will come through good and strong. What is the cause of it? Here is my reason; and if you have a better one I should like to hear it: There is in every apiary a certain number of colonies that make a business of bringing in a little honey every day, and they get it either by robbing or by some hook or crook; the queen keeps on laying, and they generally winter well too.

The Bend, O., Sept. 1, 1886. **F. W. MOATS.**

I want to thank you, friend M., for your concluding remark; and it is something I have often thought of; namely, that certain colonies in almost every apiary are to be found that always get a little honey, even during the most severe droughts. They are like some business men who manage, by hook or by crook, to take in a little money every day; that is, they will accomplish something each day, when the great multitudes around them seem to settle down to the conclusion that every thing is at a standstill; and I believe as you say, that colonies with extra energy generally winter well. Several years ago there was so much talk of getting the bees to rear brood just before winter set in, so as to have plenty of young bees for wintering, that a good deal of attention was turned toward this one point. Finally, however, several of our veterans gave instances of where bees wintered well when they were queenless during the fall months, and we had one such result. Now, suppose you absolutely prevent all brood-rearing, say after Sept. 1; have a fair quantity of bees, and make all conditions right, are you sure they would not winter as well as those that reared brood during September and October? May be you are right; but we have all of us almost rushed to conclusions when a little more time seemed to show the solution of the great problem was not exactly there after all.

DOOLITTLE'S REPORT.

A GOOD WORD FOR THE MAMMOTH RED CLOVER AS A HONEY-PLANT.

PROBABLY in no year within the last quarter of a century have we had so peculiar a season for honey production in this locality as has been the one just passed. I never have realized so fully as I do now, that successful bee-keeping is wholly dependent upon the weather; for if the weather is unpropitious during a honey-flow, all our efforts in preparing for that flow count for naught. Take it as a whole, we have had cold, cloudy, rainy weather *just* when the bees needed pleasant weather, and pleasant weather when there was little or nothing for the bees to do; so that, had it not been for the seed crop of the Mammoth red clover, I should have had to record a *failure* as to a honey-crop. But, thanks to this source, which came in just in time to save that failure, and enable me to report 33⅔ lbs. of comb honey as an average yield from each colony, spring count.

Spring opened very propitiously, the first 24 days after the bees began to fly being pleasant, beautiful days. This caused the bees to rear brood rapidly, so that most of them were in splendid condition to gather from the fruit-bloom, as their numbers were fully as great as is usually the case at the time white clover opens. But, alas! our hopes were blighted by cool and rainy weather setting in three days before this bloom opened, and continuing till the bloom was past, so that the large force of bees proved only consumers instead of producers, causing me to feed for nearly three weeks to keep them from starving. This unpropitious weather also caused brood-rearing nearly to cease, so that the brood which should have been the best for active work during the basswood bloom was minus; and, feed as much as I would, I could not coax the bees to hatch the eggs the queen laid.

Right here is a mystery to me: How do the bees keep the eggs, laid by the queen, from hatching at one time, and again hatch them so that a hive will be well filled with little larvæ in three day's time? I have noticed this singular fact for years, and have also noticed that feeding bees (at such times as they do not so desire larvæ) to keep up brood-rearing has little if any effect in accomplishing the desired end. Hence I again repeat what I have said elsewhere, that "two or three pleasant days, with plenty of pollen, has more to do with stimulating brood-rearing than weeks of feeding."

Well, when I saw that I could get but little brood in my hives the last half of May, I knew that my crop of basswood honey must be short at best, and especially as we had promise of only about one-sixth the usual bloom; but I was not prepared for such a wholesale loss of bees as I experienced about the 20th of June. Colonies which had started to work nicely in sections during the week of good weather we had the fore part of white-clover bloom were so depopulated that they could scarcely care for their brood; while the ground in and about the apiary was literally covered with dead and dying bees, so that almost every step one must tread on these old worn-out bees, dying of old age. As brood-rearing was now going on rapidly, I expected that again this brood, when hatched into bees, would turn into consumers, as had the brood in the early part of the season; but, as was said before, red clover came to our rescue, which, together with the little gathered from white clover, basswood, and teasel, gave me 2022 lbs. of comb honey from the 60 colonies I had left after my sales during the spring. Out of my 95 last fall I lost 3 during the winter and spring, and two were queenless, which were united with others. From the 60, only 40 swarms issued, so that my numbers to go into winter with will not be greater than a year ago, for I shall unite them down till all have sufficient natural stores for winter. My past experience proves natural stores to be the best for bees to winter upon in this locality, therefore I prefer to use them instead of going through the (to me) tedious operation of making and feeding a large amount of sugar syrup.

Borodino, N. Y., Sept., 1886. G. M. DOOLITTLE.

Friend D., in regard to this matter of getting brood and not getting brood when the brood-nest is well supplied with eggs, I should say the trouble is a lack of pollen. I have succeeded in getting great quantities of brood by feeding flour candy; that is, candy made with a proper admixture of wheat or rye flour. It is astonishing to see the amount of brood that even a moderate-sized colony may produce, when all the conditions are favorable; and it is sometimes perplexing as well as astonishing to see how the bees absolutely refuse to raise brood at times, even though it seems as if we had given them every thing needful.

THE "ZEEP, ZEEP," OF QUEENS.

AND CAN SHE PRODUCE IT WHILE IN THE CELL?

I SEE on page 695, GLEANINGS for Sept. 1, an article from J. C. Gilliland, in which he says: "I have found no queens hatched, even when the queens had been calling one or two days, but with the cap of the cell cut nearly off; and as soon as they were taken out of the hive the young queens would come out." Now, what I wish to say is this: I do not believe a queen in cell ever made a particle of noise; and all talk of the bees keeping the queen in until she squeals is utter nonsense. Now for my reasons:

I have kept bees for 30 years for — well, we will say fun, certainly not profit. I have seen a queen pipe with only a clear glass between us and my face, not more than 6 inches from her, in good light, and she on a clear (almost white) comb. She just stopped, humped herself, and acted mad; vibrated her wings until you could scarcely see them, and "peep, peep," from 3 to 5 times, sounded out loudly. This I saw several times, and at the same time heard others doing the same. The noise is made with the wings; for as the wings ceased to vibrate, the noise stopped; and as the vibrations grew less frequent, the sound was less sharp. Now for another reason: A friend wanted a queen. I went to a Holy-Land swarm where queens were calling. On raising 3 combs I caught and caged 3 queens; and on closing the hive I heard queens still calling. The next day I took out 2 queens, and still heard them calling. Next day they swarmed, and the next morning I found several dead queens in front of the hive. Some seemed to be two or three days old; one, at least, immature, and was undoubtedly taken from the cell. My experience with Holy-Land bees, *got of you*, is that they are remarkably prolific in queens, say from 20 to 30 in a hive. I forgot to say, that, when I saw these queens piping, the bees about them paid not the slightest attention, but just kept at their work as though they did not hear it. Will you, friend Root, or some other person, tell us how the queen makes the noise called "piping"? If, as I believe, with the wings, like the katydid and other insects, then certainly it can not be done in the cell. E. S. MINER.

Necedah, Wis., Sept. 8, 1886.

Friend M., we are glad to receive the facts you furnish; but we want to chide you a little for being uncharitable. I suppose you mean that you will not believe a queen ever made a noise while in the cell until it is clearly proven to be a fact. I do not know that I am just now prepared to give positive proof; but am abundantly satisfied that queens do produce the "zeep, zeep," while in the cell. The squealing may be another matter. I have never watched closely enough to decide on that point. I think I have heard them utter their peculiar note when the capping is loose, so they can push their heads out and draw them back again; and if so, I do not see why they may not do it before the cell is opened at all. I believe most cells would afford the queen room enough to move her wings in the way you mention, and I have supposed this was the way they did it. In fact, I do not know that bees have any other method of uttering their different calls. Worker-bees, you know, express their feelings by the hum of their wings and while on the wing.

* * *

THE POSSIBILITIES OF FRAMES.

THE IMPORTANCE OF SPACING THEM JUST THE RIGHT DISTANCE APART.

"THE invention and introduction of frames formed an era in bee-keeping." Many times has this sentence been written and read; but how many of its writers and readers fully comprehend all it implies? If the bees themselves, and their convenience alone, were considered, it would be found that frames are a disadvantage rather than an advantage. It is to the progressive bee-keeper alone that they are of any value; and to him, that value is incomparable. Frames were originated for the purpose of giving greater control of the bees, and of allowing greater freedom in manipulating for examination and observation. If their value ended with this, I question whether the gain would pay for the actual loss to the producer of honey, occasioned by their use; or whether the discoveries made through their aid would overbalance the actual destruction brought about in the hands of the inexperienced by too frequent examination, and the passion aroused to increase by division till such division ruins their apiaries. But, thanks to the Rev. L. L. Langstroth, his invention of hanging movable frames has been the means in the past of doing more than any other thing to put the occupation of apiculture on a sound and solid basis, and will in the future be the means of giving us full, thorough, and complete control, not only of the bees and hive as a colony, but of causing or preventing increase by allowing or preventing swarming; and also, by the aid of sections and the extractor, of guiding the production of honey in such form and shape as may be most desirable or advisable.

It is a well-understood matter, that the frame hive is a compromise between the natural habits of the bee and the desire of man to control its operations to his best advantage; and for the furthering of this compromise, the only thought *has* been to produce a frame of such form and size as would produce the best yield of honey, and at the same time prove the safest as a winter habitation. To this end discussions have been frequent—as to the relative value of deep and shallow frames. These discussions have at times been warm, and, perhaps as much as any other, have aroused the ire of the various disputants. All of these disputants have, in their desire to prove their particular points, seemed to lose sight of the most important feature of the case, and have been satisfied in fighting over a shadow; namely, an extra inch, more or less, in length or depth. The point they have lost sight of is the space to be allowed between the frames; a mutual agreement seeming to have been arrived at, that *about* 1½ inches, or from 1⅜ to 1⅝, is *about* right.

In this discussion another element has at times been a source of contention; namely, as to whether frames should be fixed or not; and closed-end frames have been used and advised, among which are the Quinby and the Hoffman. One of the chief opponents of closed-end frames, or, in fact, of any frame that is not absolutely movable laterally as well as otherwise, is the editor of GLEANINGS. The position he has taken in this matter is, to my mind, correct, but he has not gone quite far enough. To judge of the future possibilities of frames, we must take into consideration the use that is to be made of them, and work them in accordance with such use. Probably the best results will be attained by using the brood-chamber for brood alone, or at least by doing as the bees do—devoting the center of the brood-chamber to brood, if we use a hive-body large enough for both brood and stores. It matters little what size or form of frame is used, so far as the brood-chamber itself is concerned. It is only when we desire to have our surplus deposited in sections that any question arises; and each one will adopt such size and form of frame as suits himself. The real question is, How can we get the greatest yield of honey in the most desirable form, in the most economical manner, and at the same time bring about the greatest possible increase the most desirably? My answer is, By using care and judgment in spacing our frames. There is no difficulty in getting, by the use of foundation, all combs built true, and, if we space such frames at just the right distance apart, there is no difficulty in having such combs built as flat as a board. Bees will, under no circumstances, seal up brood in cells more than seven-sixteenths of an inch deep. What I mean is, that if deeper cells are given them they will cut them down to that depth before they will seal up brood in them. This being the case, the production of brood is in our own hands; and if we can control the production of brood, swarming is practically within our control. It is not a matter of hives at all. Invention and ingenuity may be taxed to the utmost in producing this, that, or the other style: none of them will be more acceptable to the bees than a hollow log, and none of them will be fully controllable that do not allow of spacing frames as closely together or as far apart as it may be chosen so to do.

To the prejudiced mind, the idea I am endeavoring to inculcate may be deemed "all bosh;" but the thinking mind, who is investigating solely to find the best ways and means, will see that we can accomplish the greatest amount of good only by working in harmony with nature. Many of our humble servants of the lower orders can be trained against their natural instincts, but the honey-bee can not. We can guide or lead it to a certain extent, but we can't drive it an inch. If it has any peculiarities, we can take advantage of them; but we must be sure to do so in the right way. I have already, in a former number, outlined my method of working for honey and increase; and in the above I desire simply to call attention to what I deem a point of importance. J. E. Pond, Jr.

Foxboro, Mass., Sept., 1886.

Thanks, friend P., for the points you make; but I confess I do not see how the production of brood is in our own hands by means of spacing the frames just right. I agree with you, that the thickness of a comb with capped brood in each side is always exact; and it has been suggested that we could make the bees use the combs for brood and nothing else by spacing them just the right distance for the production of brood. Now, while I grant that they are more apt to put brood instead of honey in worker-combs so spaced, it is not by any means certain that they will use these combs for brood only, for I have seen brood-frames completely filled with honey, capped over on both sides, when spaced as you recommend. Very likely, however, they did not have room for their honey in deeper combs at one side or over the brood-nest. If the latter arrangement is to be used in connection with the proper spacing of the brood-combs, may be you are right. I should like to have the matter investigated. We notice that friend Heddon has made the end-pieces of his new hive just $1\frac{3}{8}$ inches. This is done, probably, with the view of accomplishing the object we are discussing.

FROM REPORTS DISCOURAGING TO REPORTS ENCOURAGING.

HOW HE AT LAST SUCCEEDED IN SECURING 500 LBS. OF HONEY PER COLONY, SPRING COUNT.

In giving in my report for the season I might as well commence with the fall of 1884, when I went into winter quarters with 28 strong swarms, 22 arranged along side by side, packed in dry leaves, 6 buried in a clamp. The winter was one of the most severe ever known, and their stores were composed of buckwheat honey and honey-dew. By February, all those packed on their summer stands died of dysentery; the six in the clamp were taken out in April. Four of them were alive, though weak. They commenced rearing brood; but the weather came off cold, and most of their brood was killed, and, of course, the bees were dwindling away until they all lost their queens (I presume they killed them). I united them all, making one weak swarm. I now gave up in disgust, caring little whether they lived or died. I put all the combs away, with the intention of melting them into wax; but the one swarm rallied, raised a queen, and by the commencement of basswood-bloom they were in fair condition.

About this time I bought, for $2.50, a swarm hanging on a tree. They proved to be fine Italians—the kind, you know, that drop several feet away from their hives, and, after getting their wind, go into the hive with that peculiar twist. The queen proved very prolific, and by the commencement of buckwheat-bloom I bought 2 queens and divided my two swarms; and before cold weather they were strong, and had made me 150 lbs. of goldenrod and aster honey, mostly aster, which I think is the finest honey I ever saw. I wintered the four. One was weak, three were strong; they built up very rapidly, and by the 15th of May I commenced to divide, but not to weaken them. By the commencement of clover they were strong enough to work on 20 frames; in about ten days I commenced to extract, and have taken, up to date, 1992 lbs. from four swarms, spring count; and as I have given all the boys and girls all the honey they wanted in extracting days, I call it 2000 lbs., or 500 lbs. per colony. I have increased to 21 strong swarms, and if frost holds off two weeks longer I shall get considerably more yet. M. Vincent.

Milan, Mich., Sept. 13, 1886.

ANOTHER HONEY-PLANT.

ARE THE BEES ATTRACTED BY THE COLOR AND BEAUTY OF PLANTS?

Mr. S. F. NEWMAN, of Norwalk, O., sends me a plant for name which he says is an excellent honey-plant. It proves to be *Polymnia Canadensis*, or leaf-cup. This adds another to the valuable list of the composite honey-plants. It is a near relative of *Coreopsis*, or tick-seed, and of the thoroughworts and goldenrods.

By the way, Mr. Editor, I observe this autumn, that, while our marshes have been resplendent with boneset, tick-seed, goldenrod, asters, etc., the bees have been quite partial to the goldenrods; and if they are governed at all by beauty, why not? I think we have no handsomer flowers in all the floral wealth of nature than these graceful gold-bedecked solidagos. In several walks of late, in a large marsh hard by the college, I have paid special attention to this matter; and while I have seen bees in limited numbers on all the well-known honey-plants, I have seen them *swarming* on the goldenrod. Hence our autumn honey, and we have secured no little of it, is the rich amber color, and most excellent flavor, of the goldenrod honey. Tell *me* such honey is not good for winter stores! I would as soon have it for my own table, or for the bees, as to have the nicest and purest white-clover honey.

I fully believe now that no subject connected with apiculture is so worthy of attention and development as this very one of honey-plants. Next to that I would place the matter of races of bees. I believe careful breeding may give us a much better bee than we now have. A. J. Cook.

Agricultural College, Mich., Sept. 1, 1886.

WHO SHALL KEEP BEES?

AND HOW CAN THE WORLD IN GENERAL BE MOST BENEFITED BY BEE CULTURE?

This subject has been considerably discussed, and I have no intention to take sides for or against invalids and women. The business of raising honey is assuming proportions of considerable magnitude, and it is time to consider it as a matter of public interest, and not merely with reference to the individual bee-keeper. Here is a source of wealth to the nation, not to be despised; a good wholesome food, for home consumption and for export, to be had for the gathering. The public, or, if you please, the state, has a right to consider the best means to secure this commodity in the best shape and at least expense. It is true, that bee-keeping may also be considered as a source of pleasant exercise and relaxation from mental pursuits; but this view is far overshadowed in importance by the other.

As at present conducted, there is a kind of haphazard character about the business of bee keeping. A man keeps a number of bees for a time, and then gives up the business entirely. The same may be said of farming; but in the latter case it is only a change of farmers. In some shape or other the land is all occupied for agricultural purposes.

The public good will be best subserved by having the field regularly occupied; and to this end it seems necessary that the one who engages in the business, be it man, woman, invalid, or servant-girl, shall devote a principal part of, if not his entire time and energies, to bee-keeping as a business. It is a business that requires not only certain natural qualifications, but also thought, study, and experience. One can hardly afford to give these without the expectation of engaging in the business to a sufficient extent to reap a pecuniary reward. Right here I shall be met by some who will say that I must not fail to recognize the right of individuals to engage in bee-keeping, not for the money there is in it, but for pastime and healthful recreation. I do recognize this fully, just as I recognize the right of every merchant, mechanic, or professional man, to have his patch of ground to cultivate potatoes, corn, or strawberries; but the fact remains, that, to make agriculture a source of wealth to the nation, there must be farmers who devote their entire time to the business. Others, again, will think that it is to the interest of certain classes, as publishers and supply-dealers, that bee-keeping should be largely if not entirely in the hands of amateurs. Let us look at this In a given area of, say, 1000 square miles, there might be established profitably perhaps 30 apiaries of 100 colonies each if conducted by 30 specialists. If no specialists were on the ground there might be anywhere from 20 to 200 or more places where from one to a dozen colonies are kept. In the latter case, does any one suppose there would be as many books and periodicals devoted to bee culture taken as among the 30 specialists? And as to supplies, there would be something like a steady trade among the 30 specialists, and among the others the trade would be worth very little. As to the bee-keepers themselves, the sooner the business gets down to an established basis, pursued as a principal if not an entire means of obtaining a livelihood, the better. Those of us who now get our bread and butter by bee-keeping know only too well how the market is annually demoralized by the owner of a few colonies who considers the amount of surplus obtained as so much luck, puts it on the market in any kind of shape, and at any price, doing just so much toward preventing honey from becoming a staple commodity.

I am a little afraid that some of those whose attention I am anxious to secure stopped reading before reaching this point, saying, "I don't see that there is any thing of interest to me in this. What is there practical about it?" It is of practical importance, if my position is correct, to be able to invest time and money in this business, and have some feeling of security that there is some permanence about it; that no mere whim of some envious neighbor may drive me out of the business next year; that, after making investment in buildings and fixtures, and perhaps special pasturage, I may feel secure that no one else may be able, by overstocking, to drive me from the field. In plain words, I take the radical ground that legislation is needed, whereby in some way, under proper limitations and restrictions, by paying for it, I may have the control of a certain number of acres or square miles as a range for my bees. I sincerely believe that something of this kind would best serve the interests of all, and I may have a word to say upon it hereafter. In the meantime I shall be glad if others may consider it of sufficient moment to give their views, even if nothing but objections are given.

Marengo, Ill., Sept., 1886. C. C. MILLER.

Friend M., your ideas are good and sound, but I am afraid it will take a good while to get things into shape as they are in agriculture and some other pursuits. You say, that in farming the ground is all occupied by somebody. It is true, it is occupied after a fashion, but it is not all occupied in the way we market-gardeners sometimes occupy a few acres, *I tell you*. It is a misfortune all around, to have so many who are dabbling at all kinds of industries in this haphazard way—benefiting neither themselves nor the public at large. But so long as this is a free country, it seems hard to prescribe a remedy. By the way, aren't you a little uncharitable toward supply-dealers? I hope that there are few if any supply-dealers (or publishers) who are pleased at the prospect of selling supplies which will probably never permanently benefit the purchaser nor his neighbors. I do not mean to say that we are any more conscientious as a class than other business men; but I do think we are about as good as the average.

REPORT FROM FLORIDA.

FRIEND GRAY TELLS US SOME OF HIS EXPERIENCE WITH PERFORATED HONEY-BOARDS, HIVING BEES ON EMPTY FRAMES, ETC.

EDITOR GLEANINGS:—Although my specialty is queen-rearing, yet a report from ten hives set apart for comb honey may be of interest to some one. This is an "off" year, and, like Mr. Hart on page 645, 1886, I would rather not give figures. Our honey season began with the orange-bloom in March; but this year it seems that the orange trees produced enough blossoms only to make oranges, and no surplus; and there was not more than one-tenth the bloom we generally have. Besides a great deal of unfavorable weather, high winds prevailed; consequently the surplus honey from orange was next to nothing. Saw-palmetto did better, and the ten hives spoken of averaged 20 lbs. and increased to 20. This is all the honey we get till fall.

ORANGE-BLOOM HONEY.

During the orange-bloom, when honey was coming in slowly, my bees got the swarming mania badly, I thought; but the reading of Mrs. Chaddock's, Hutchinson's, and Hart's letters consoled me. I adopted the Hutchinson plan of hiving swarms on five L. frames with starters only; sections with fdn. above, and at side also on a few. I believe four swarms out of ten hived this way swarmed again about one month or less afterward, and I must say the drone-comb built bothered me. I had all the drones reared from choice queens that I wanted;

and I should like to know how much drone-comb in the five-frame brood-chamber it takes to bother friend Hutchinson. I believe he has never been explicit in stating this matter. Some of mine built two frames each, half full of drone-comb; others one frame half full. However, I think the plan a good one; and perhaps another year, if bees do not get the swarming fever, it may work to our satisfaction—anyhow, I shall try it (about 'alf and 'alf).

PERFORATED ZINC, ENGLISH AND AMERICAN MAKE.

I used your zinc honey-boards. Ten of them were American perforated, and ten I cut from a sheet of the English, I suppose, which you sent me. No queens went above either; but I had a queen to pass through the English when I used it as a guard at the entrance. I noticed where I put wide frames with sections and fdn. below, and sections with fdn. above with honey-board between, that they worked best in the wide frames below; but in one instance, where I forgot to put fdn. and sections in the wide frames below, they worked best in sections containing fdn. above the honey-board. Again, one hive was arranged with strips of perforated metal between the brood-chamber and wide frames at the side containing sections with fdn.; also a honey-board separating the brood-chamber from sections above. In this case the bees worked best above. I am well aware, that not much valuable inference can be drawn from experiments with a few hives; but I thought it well to let this be taken for what it is worth.

BROOD-FRAMES 1¼ INCHES APART, FROM CENTER TO CENTER.

I made use of some of the "cream" given us by Mr. Hutchinson from the Detroit Convention last winter by spacing brood-frames only 1¼ inches from center to center. I see Mr. Pond is an extreme advocate of this theory. It worked well with me; it forced the bees out of the brood-chamber; and although honey yielded scantily, I saw no disposition not to work in sections, and I watched closely.

CARE OF COMB HONEY IN FLORIDA.

Nice 1-lb. sections retail at 20 cents. I peddled mine for awhile at 25 cents, but it was slow sale at this price. In this warm climate, in the rainy season the best way I know to keep comb honey is to leave it on the hive above the honey-board, with only five frames below, until you want it. If you take it off and attempt to keep it in a "warm dry room" to keep it from sweating or oozing out, I think you will fail to have a salable article. This is why I have just taken off my last section, although our honey-yield was almost over before it began with a good many. I am now feeding a little to be in good shape for the October and November honey-flow.

Mr. Hart has made a valuable discovery concerning cabbage-palmetto, which he refers to on page 646. Any one thinking of locating an apiary in Florida should consider this piece of news he gives us.

LUTHER W. GRAY.

Orlando, Fla., Sept. 14, 1886.

We are always glad of facts, friend G., even though from the experience of a few hives. If I am correct, your experiments with side and top storing would seem to indicate that the bees prefer to store in sections placed above the brood (but I suppose this, of course, would depend much on the size and shape of the frame). But where perforated zinc is used above, and not at the sides, they prefer side storing. It would follow, then, that, if the queen were kept with perforated zinc from sections at the side and above the brood, the bees would give the preference to that placed above, the same as with no zinc; therefore if our frames are made shallow, we may safely conclude that top storing is sufficient; that is, that very little more honey will be stored by having sections at the side of the brood as well as above it.

ITALIANS VERSUS BLACKS.

SELLING BEES BY THE POUND.

I WANT to say a few words to-day about some of the different kinds of bees—which are the most profitable to keep. My husband has kept black, Italian, and hybrid bees.

The Italians will fly swifter to gather honey than either one of the others; but if there is plenty of honey near by, or so they will not have to go a great distance after it, we think the black bees will gather the most honey.

The hybrids come next. Some years the Italians do the best. Last year we were living in Vermont, and we kept but a few swarms. The Italians seemed to do better there than either of the others —black or hybrid. This summer my husband worked in a large apiary, where there were kept both blacks and Italians. The black bees have gone far ahead of the other bees, and have made much more honey. I think very likely it would depend much on the locality, and what kind of a season it was for bees.

HOW SHALL WE ESTIMATE THE HONEY WHEN SELLING BEES BY THE POUND?

I want to ask a question. Is it right to sell bees by the pound, and sell part honey with them? Suppose Mr. C wants to buy a few pounds of bees. He sends to A or B, who live at quite a distance. Mr. A gets the order, and that day, or perhaps the next, goes to his apiary. Those bees must be got ready to send off; but he doesn't think of that smoker being left behind. No, he does not wish to get stung, if he can avoid it. He gives the bees a good smoking, then waits a minute or so, and nearly if not all of those bees will fill themselves with honey. Mr. A then proceeds to take out the frames, shakes the bees from them into a box; then when they are nicely packed and weighed they are sent off. Mr. C is charged so much for so many pounds of bees, honey and all. What I wish to know is, how many more bees should be put in to make up for the honey? Perhaps this would be called a small thing in the sight of some people in this world, but not in the sight of God, who knows and sees all things. God looks at the little things we do, let them be good or bad, as well as the great.

MRS. JENNIE M. JOHNSON.

Rexford Flats, N. Y., Sept. 20, 1886.

Like a great many other things in bee-keeping, no definite rule can be laid down. Bees will gorge themselves very much in proportion as you smoke them. It is a great mistake—in fact, an act of cruelty—to smoke gentle bees like Italians until they all gorge themselves with honey. In the majority of cases a couple of puffs over the top of the frames will be found amply sufficient. Shake the bees into a pound cage, and then allow about one-fourth to the actual weight of the bees for the honey they may have in their sacks; that is, if your order calls for a pound of bees, make the scales turn to a pound and a quarter. If you propose to cage and ship vicious bees, it may be necessary to smoke them so severely as to cause them to gorge themselves. I would then allow one-half for the honey. Again, in the height of the honey season, smoke or no smoke, gentle bees will be filled with honey. A liberal allowance should then be given as before; at any rate, do not be afraid to give good measure. An interesting point comes in here: We have, in former seasons, bought swarms in the cluster just as the farmers brought them in. We paid so much a pound for the bees, and therefore knew the exact weight of the bees at the time of clustering. On weighing them the next day, to ascertain the amount of honey the bees carried with them, we found that they lost nearly one-half. Of course, the bees had gorged themselves with honey just prior to the exodus of the swarm. The shipper must therefore use judgment.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BEE-KEEPING IN THE WEST INDIES.

I HAVE just received your A B C book, and "How the Farm Pays." I should like a little advice from you with regard to bee culture. I may say I'm a beginner, and then, again, I'm not. I have 58 colonies of bees in all sorts of boxes, and two hives with bees. The hives were imported from England. With America so near, it is any thing but a paying concern to send to England for bee-appliances.

This is a glorious country for bee culture, there being no winter and only two months in the year when bees have to be fed—August and September. One great drawback is, that the weather is very severe sometimes; consequently the little fellows, not being waterproof, have to stay at home. Among the negroes, bees are kept largely, and they make a good living by it — some of them. One man I must tell you of—a blacksmith—worth 2s. *6d.* per day, refuses to work, because his bees give him such a good income. He has 1000 boxes; and — would you believe it? — sometimes his swarms go away simply because he won't pay 3 pence for a box to put them in. He is "penny wise and pound foolish." I have known his bees to remain three and four days on trees in his yard, and not go away. I have seen the bees working on comb, hanging where they swarmed. To return to myself, I have 60 boxes, and I mean to keep them on an improved scale. In October I expect those 60 to increase to 100. January, when they start fair play, I expect them to be 300 before I take any honey; and by July, the end of the honey and swarming season, if all goes well I expect quite 1000 boxes. I think my best plan would be to start a fresh apiary, letting this one go on the same way. C. E. SCUDAMORE.

Morant Bay, Jamaica, July 28, 1886.

Friend S., we are very glad indeed to hear of so good a report from Jamaica, and I am particularly interested in that colored blacksmith who has 1000 colonies, for I suppose you mean by the term "boxes," hives of bees. If our colored friend has got up to this number of colonies, it seems to me he ought to have intelligence enough to take hold of the A B C book, and I do not know how to give any better advice than for you both to follow its teachings. It is being revised constantly: in fact, we are at work every day in the year, to keep it fully abreast with the times in all late improvements.—If I were you I should not be ambitious to become master of a thousand colonies. Ten colonies, so managed as to give you 1000 lbs. of honey each season, will be better than a large number with little or no honey. Your success depends greatly on your market. What does nice comb honey in one-pound sections sell for in your principal cities?

WHAT TO DO WHEN BEES SWARM IN THE FALL.

Brother Root:—Inclosed find one dollar for GLEANINGS. I really feel ashamed to send so small an amount of cash for so large an amount of instruction. My bees have made but little honey, and have swarmed all the fall. What shall I do with them? I hate to cut out the cells. I had one swarm come out last Saturday, and I let them go off because I did not want them. J. B. PIKE.

Marshfield, Vt., Sept. 5, 1886.

Thanks, friend P., for your kind words. Before we can direct what you should do with swarms that come out in the fall, we should have to know whether you want an increase of stocks or honey. In any case, unless you are already overstocked I think it will pay well to feed them. Late swarms, when properly fed up, winter beautifully, for the queen almost always raises a nice lot of brood before winter sets in.

NOT VERY FLATTERING SUCCESS.

In the fall of 1883 I bought two hives of bees for $10.00. They wintered well on their stands. In the spring of 1884 one of them swarmed once and the other twice, making me in all five good swarms. The same spring I traded a cow, valued at $40.00, on five more young swarms, having then in all ten swarms; but there followed a dry fall, when they did not do very well. In the spring of 1885 six of them were dead, with honey enough in their hives, and the four alive. They dwindled away until they were all gone. That ended my bee-business. In April last I bought a hive again for $6.50, and from that one I now have five good swarms, which have all been doing finely until within about four weeks, when the dry weather came upon us, and which is still reigning, since which time they have gradually been doing less and less, until now they are having actually nothing to do, almost every thing being dried up. Now, what can I do for my bees? Feed them? If so, how?

Elkhart, Ind., Aug. 18, 1886. M. D. WENGER.

I would feed; see Our Own Apiary, last issue.

BLACK BEES WORKING ON RED CLOVER.

I have black bees that work on red clover extensively. One colony has made 70 lbs. of surplus, and swarmed June 28th. One young swarm that I hived June 5th made 50 lbs. by June 27th. This was surplus. Others have done as well. How is that for black bees? I have owned bees 34 years, and since June 12th is my first experience with Italians. In the A B C book I saw your statement that you did not know what propolis wax is gathered from. It is gathered from the quaking aspen, poplar-buds, and balm in-Gilead. Drops of wax can be seen at any season of the year. The bees bite it off with their mandibles, and lay it in the pollen-sack. **James P. Reynolds.**

Hydetown, Pa., July 3, 1886.

WHAT SHALL WE DO IN A CASE OF SEVERE STINGING?

In your issue of Aug. 15th, page 667, you tell of a case of severe bee-stinging, where whisky was given the credit of saving a child's life. I am willing to give "honor to whom honor is due;" but as my youngest child (20 months old) passed through a similar experience one day last week, and recovered without the use of any thing intoxicating, I think it doubtful if it is necessary in such cases. My baby was not unfrequently stung last year, and this without any unusual result; but on the day in question he trod on a rotten apple, and a bee stung him under the foot. In two minutes he was swollen all over his body in an alarming manner. White blotches came out, accompanied by great itching; he had also a difficulty in breathing. We laid him on a lounge in as cool a room as we had, and fanned him, applying hartshorn freely to the foot stung, and in less than an hour the alarming symptoms had subsided, leaving him intensely red all that day. Now, why did it affect him so on that occasion? Was it the extreme heat of the weather, or the condition of the child's blood? or was the bee particularly poisonous? **Samuel R. Neave.**

Hughesville, Md., Aug. 31, 1886.

Very true, friend N.; but when a child or a horse has received 50 or 100 stings on various parts of the body, are you sure your mild treatment would have answered? I am free to confess, that I am very much averse to the use of whisky, or, in fact, drugs in general, in cases of severe stinging; but if whisky *will save* a child's life, then we ought not to hesitate about administering it. I would, however, resort to other means first; and if life still seems to be threatened, I would give the whisky. Perhaps Prof. Cook can advise us.

BEES AND NEIGHBORS, AGAIN.

Barry bee-keepers are in trouble again. They sued my husband in June, about the bees, claiming they are a nuisance; but when they found the bees belonged to me we settled without any suit by agreeing to either move the bees or put up a fence or screen. We put up a screen of muslin and canvas. There is a large cider-house in town where they make a great deal of cider, and also buy apples. They have no screens to the windows, and lately the bees have been pretty thick in the cider-house; as it was extremely dry, there was no honey in the fields. This cider-man and others drew up a petition to have all the bees moved out of town, asking the city council to pass an ordinance to that effect. Now, what had the bee-keepers better do? I understand they have about 200 signers already to the petition. It was circulated lively on Sunday. We have no saloons in town, but this man sells hard cider, and has been tried more than once. There were men in town yesterday who were drunk on his cider. I should like a hundred of your new tracts, but they are not broad enough to cover nearly all the ground in our case.

Barry, Ill. **Mrs. M. A. Shepherd.**

My friend, you are striking on a great problem. How shall we meet these great things? If you should start out with a petition against cider-mills, and in favor of bees, perhaps you could easily get more than 200 signers in a town that has no saloons. In that case, I do not know how the council could pass the ordinance you refer to; but is that the best way to meet such questions? You know the Bible says, "Not by might nor by power, but by my Spirit." Can you not put up screens of cheese-cloth or mosquito-netting around the cider-mill? It seems to me, my good friend, you have nearly the right spirit; and with *God's* help, even one individual is a majority. Is it not so?

THE SUPERIORITY OF ITALIANS AGAIN, OVER BLACK BEES.

The honey crop is almost a failure here. Good colonies of Italians, however, have gathered about 45 lbs. on an average; but black bees have hardly made enough to winter on.

RABBITS FOR KEEPING DOWN THE WEEDS AND GRASS IN THE APIARY.

I have found the rabbits sold by Fradenburg to be a valuable acquisition to the apiary. Last year I kept from 6 to 12 in an apiary of 25 colonies, and they devoured grass and weeds as fast as they appeared. This year I discarded them, and that to my sorrow; for I have been annoyed not a little with a rank growth of vegetation. Methinks I hear you say, "Why did you not hoe up the weeds?" Well, the bees seemed to prefer weeds to slashing around with a hoe. I shall restock my apiary next year with said rabbits. **D. W. Moss.**

San Augustine, Texas, Sept. 4, 1886.

BALLING QUEENS.

I should like if yourself, Ernest, or some of the many writers in Gleanings, would give the cause and remedy of the above trouble. In my ten years' experience with brown bees I never heard of or experienced any thing of the kind; but since I got all Italians, it has got to be almost a common occurrence. I have lost a good many fine queens by balling, and, it may be, through my manipulations —not by introducing queens, understand, but from working with the bees. Give me the cause, and how to prevent it. Are the Italians subject to it? **John H. Mullin.**

Oakland, Col. Co., Texas, Aug. 26, 1886.

Bees ball queens for the simple reason that they do not wish to accept them, and by that means they propose to sting or smother them to death. When a queen is found to be balled, remove the frame to which is attached the ball. With the smoker in one hand send a few puffs upon the ball until you can see the queen. Continue puffing smoke upon the bees so tenaciously clinging to the queen, until you can pick her up by the wings. In doing this, in all probability two or three bees will still adhere to the queen. These you must pick off one by one. In taking a queen out of a ball of bees, a smoker is almost indispensible, though I have done it without one.

DRUMMING BEES.

I am an A B C scholar; and if you will allow me a little space in GLEANINGS I should like to ask you to explain a point in reference to transferring bees from boxes to movable-frame hives, which I, for one, do not understand. On page 269 (A B C book) you say (allow me to quote it word for word, so as to make no mistake):

"A little before swarming time, pry the top from your box hive and set a single-story Simplicity over it, making all the joints bee-tight. Now hang frames filled with fdn. in this new hive, and the bees will soon work up into it. After the queen gets to laying in these combs the bees will soon all move up into it and you can lift it off and transfer, or do what you please with the old hive and combs. When you are hurried, this plan gets your stock gradually into improved hives, without very much trouble, and no mussing with dripping honey."

Mr. Doolittle, in his review of the book, advances just my idea exactly (No. 13). He says:

"Why don't you drum out those bees to start with, and have them out of the way?"

You answer, "Because I like the way I have given, best." Now, Mr. Root, will you kindly give your reason for *not* drumming those bees out at once?

I fear the honey-crop is not coming up to the average, this year, in this locality. I tried sowing buckwheat in front of the hives, but I have never yet seen a bee at work at it, although they go in multitudes to a field of buckwheat from a quarter to half a mile away. W. M. BARNUM.

Angelica, N. Y., Aug. 25, 1886.

Friend B., I would not waste time in drumming bees out, for I can transfer a hive and have it all finished during the time ordinarily occupied by the drumming process. I have thoroughly tried both ways. The passage you quote was only a suggestion to those who prefer to transfer in that manner. Our regular way of transferring is given just before the above, as you may recollect. I should think it probable that, for some reason or other, there was no honey secretion in your own field of buckwheat.

HENDERSON'S SUBSTITUTE FOR GLASS SASHES.

In Feb. No. of GLEANINGS, page 142, you quote from Henderson's price list a substitute for glass sashes for protecting and forwarding plants. Are they safe to use all winter, or only in spring, after glass has been kept over the plants during winter? Did you try stout cotton cloth instead of cheesecloth, as you had intended? If you did, how did it work? J. M. KEHRES.

Dornsife, Pa., Aug. 25, 1886.

Friend K., we did try the substitute for glass a good deal. Stout cotton cloth, well painted with linseed oil, was a good deal more protection than Henderson's thin cloth; but the great trouble with both of them was, that they were blown about by the wind so as to make them practically useless. If they were not blown clear off, the cloth would flop up and down, so as to act like a bellows, expelling the warm air and drawing in the cold air, until the temperature was about the same outside as inside. Stretching it out on a frame, something as we do a sash, would doubtless answer a good deal better; but even then we should have the bellows motion about the same. I have about decided in favor of glass; and early in the fall, or toward spring, as the season grows warmer I would alternate the glass sash with shutters made of light pine. In extremely cold weather these sash will answer to cover the glass for an additional protection, the shutters being used, of course, nights and during cloudy days.

REPORT FROM FLORIDA; O. O. POPPLETON, AND HIS CHANGE OF LOCATION.

Bees are gathering more from the goldenrod this season than I have ever known them to do before. They are also working freely on the cowpea and some small white wild flowers, but are breeding heavily for this time of year, and reducing their store of honey as a rule. The mangrove put on quite a quantity of late bloom, but I do not think the bees got much if any honey from it this year.

Mr. O. O. Poppleton and family have sold out their place in Iowa, and will remove to their property here next month. He intends to bring about 100 colonies of bees with him from the North. He and his wife have spent three winters in this State, and, finding it agrees with their tastes, and promises well for their chosen pursuit, besides greatly improving their health, they now come to remain permanently. W. S. HART.

Hawks Park, Fla., Sept. 13, 1886.

Friend H., our best wishes go with our good friend Poppleton and his family; and we trust he will hold out as faithful and energetic in his work there as he has in the Northern States. We shall perhaps miss him to some extent from our conventions here in the North; but what is our loss, we trust will prove to be your gain.

ANOTHER BEE-KEEPER SUFFERS LOSS FROM FIRE.

This morning, just before daybreak, our little village was aroused by cries of fire; and on looking out we saw the large lumber-mill of C. W. Smith completely involved in flame. Nothing could be done to save the mill—the efforts of the villagers being directed to saving surrounding property. Every thing in the mill was destroyed, including the most of my hive-making machinery, a small quantity of lumber, etc., on which there was no insurance. I shall immediately replace the machinery; and as my storehouse was unharmed, I think I shall be able to fill all orders from that until I get to running again. C. W. COSTELLOW.

Waterboro, York Co., Me., Sept. 9, 1886.

Friend C., I think I shall say again, as I have said before, that, if I could not have my business insured, I would not have the business, unless, indeed, it were a business of such a nature that, while insurance would be exceedingly high, the profits would be very large, and the amount of capital invested comparatively small.

CARNIOLANS NOT STORING MUCH SURPLUS.

My experience with Carniolans is somewhat similar to yours and friend Swinson's. I obtained from Charles D. Duvall two fine queens in June, raised from an imported queen from Frank Benton. One of them proved to be mated with an Italian, and her progeny proved to be very yellow; the other was purely mated, her progeny being a gray in color, somewhat like our old native gray bee, and yet a practiced eye can detect a difference. They both proved exceedingly prolific; bees are good workers, but make very little surplus honey. They seem to consume all extra honey in brood-raising, and for fertile workers they surpass any thing I have ever seen. I have seen as many as one dozen depositing eggs at one time. I, like friend Doolittle, find home-raised Italians the best. T. Graham Ashmead.

Williamson, N. Y.

QUEENS RAISED UNDER THE SWARMING IMPULSE—ARE THEY PREFERABLE?

I have read several times in Gleanings concerning queens raised under the swarming impulse, and those raised in strong nuclei. I have experimented largely on that point, and I *prefer* those *not* raised under the swarming impulse, as they do not swarm so much, which is a benefit to the honey-producer. Now for facts concerning the matter:

In the spring of 1884 I had a very strong colony of Italians, which superseded their queen and swarmed with virgins, three in number. I caged the three virgin queens and returned the swarm. I then turned those three virgin queens in three different colonies, where there was nothing but cells—no queen. They were accepted at once, and the cells torn down; and those colonies, and those where I introduced those queens, swarmed more or less all through the season. In 1885 I tried the same with the same result; also the same result this year, while those raised in strong nuclei swarmed but once, and then came down to solid work. I received more honey from the bees raised from queens reared in strong nuclei or colonies after the swarming season was over than I did from those raised under the swarming impulse.

Josiah Eastburn.

Fallsington, Bucks Co., Pa., Sept. 20, 1886.

MILKWEED HONEY.

I mail you to-day a sample of milkweed honey. My bees have made about a ton of it this year. I do not like its flavor, but think it has a beautiful color. In a larger package it has a very bright golden color. It is, as you see, very thick, but I allowed it to be entirely capped over before extracting. I have never seen mention made of milkweed as a honey-plant, and therefore send you this sample, believing it will be something new to you. Now, don't say I am mistaken, and it is not from milkweed, for I *know* it is. I never knew bees to work faster, or store honey more rapidly, even from basswood. This ton of honey was all gathered in about a week, by sixty colonies. I never noticed this honey until a year ago, when I had a small quantity—two or three hundred pounds—I thought then it was "bug-juice," but know better now. Please pass your judgment on it, and report. I do not think it will be generally liked, for our neighbors nearly all condemn it. Willis Early.

Sherman, Pa., Sept. 22, 1886.

Thanks, friend E. Its color and transparency are beautiful, and *I* think the flavor is beautiful, though many may not agree with me. It seems to me that your neighbors are hard to please, if they dislike honey like the sample sent. I thought at first I had seen samples of honey from the milkweed; but come to think of it, I guess it was fireweed. But how about the little appendages that tangle the bees' feet? In reading your letter, I was surprised that you did not mention them. Didn't your bees get clogged, and fall down to the bottom of the hive, as so many have complained, where milkweed was plentiful? The fact you furnish us is another evidence of what I have often said, that almost every plant that grows is liable to furnish honey whenever we have a year when the conditions happen to be just right for its secretion.

CAN FOUNDATION BE SO MADE THAT THE BEES WILL NOT USE IT FOR BROOD-REARING?

Has the experiment ever been tried, of making foundation of such shape that it will not be used for brood? It seems to me that it can be done. If such could be done, it would be of great practical value. If it has not been tried, it seems to me that, with the means you have, and facilities for experimenting, it would be a profitable field to work in.

Sergeant's Bluff, Iowa. L. M. Brown.

Friend B., if you consult the back pages of Gleanings you will find pages devoted to the discussion of the best size of cell; and for a year or two we even sent out fdn. with the cells made between the size of worker and drone. It answered for comb honey in sections, for the bees rarely if ever tried to put brood in it when used for that purpose; but when used for brood-combs, every little while there would be a cell containing no brood, and on this account the use of it was abandoned.

IMPORTED CARNIOLAN BEES.

I will comply with your request in your foot-notes to J. B. Mason, page 616, 1886, by sending in my report, or experience, of an imported Carniolan queen from last summer, a report of which was given on pages 529 and 596. The queen proved a remarkably good layer, so that, at the time of going into winter quarters, the colony was one of my strongest ones. I fed them about half their winter stores. They were wintered successfully in a Root chaff hive and came out strong. They swarmed June 7th, were hived on empty combs, and soon had eight frames with brood, but almost no honey. They swarmed again July 31st, and were hived this time on frames with foundation. They were examined this morning, Aug. 5, and I found them drawn out about ¼ of an inch, with eggs in two frames, and a little honey in one frame only. Upon examining the hive from which they issued July 31st, I found brood in ten frames, and I don't believe there was a cupful of honey, even if all were extracted. The workers are all of a uniform color, no yellow in the least, and the very gentlest nature. I can open the hive during any part of the day, and remove all frames, without any smoke or veil. They remain quiet, and evenly divided over the combs. The daughters raised from this queen prove equally fertile, and the workers are much better honey-gatherers. I did not get this queen to raise queens for sale, but merely for my own satisfaction.

I think it a very difficult matter to keep this race pure—much more so than the Italian race. I have now in my yard about 15 Carniolan colonies, all raised from this imported queen, and all but a few have yellow bands, and some of these are the prettiest bees I ever saw. Those that have no yellow bands have more the resemblance of our common black bees by lacking the steel-colored appearance, and more or less the bands of down. I have only two strains of bees, Carniolans and Italians. I think they are a hearty and prolific race; and if mixed with Italians they will, perhaps, be an improvement. E. K. BLANK, M. D.

Hatfield, Pa., Aug. 5, 1886.

Thanks for your candid opinion of the Carniolans. Your experience with this new race is about the same as ours. We can not, therefore, think we have been impartial in the statement of their good and bad qualities.

WINTERING BEES IN THE UPPER CHAMBER OF A HOUSE.

I have great faith in your opinion on the general principles of bee-keeping, from the long and extensive practice and experience you have had, and the many methods that have been represented to you of wintering bees. I have had bees more or less for 40 years; but at the time I first kept bees there was no trouble in wintering them. They then took care pretty much of themselves; but for some ten years, or thereabouts, back, I have lost about as many every winter as I gain ahead every summer. I have tried a good many ways that I have heard recommended, and the best luck I have had was something of a chaff or straw protection, or simply a large box put over the hive and stuffed with dry hay between, leaving the entrance open all winter, so that the bees can fly when they wish to. But my success has not been up to the standard I should like. I want to begin in time this season, and try to get what light I can get on the subject. I have been proposing to try the chamber of my dwelling-house. It is the third-story from where we live, a good lath-and-plastered room, some 14 feet square. It can be darkened, and made close. The pipe from two stoves enters the chimney in said room. There is no chance of their being disturbed by jarring or noise. I should like to hear your opinion on wintering in that location. I have also thought of trying some in my hay-barn, packing in hay away up above my horses.

Romance, Wis., Aug. 28, 1886. WILLIAM HALL.

Friend H., putting the bees in an upper room is pretty much discarded. Although they *may be* wintered nicely in a barn, the conditions are so seldom just right for it I would not recommend it. The whole subject is thoroughly gone over in the A B C book; and to put it briefly, unless you put your bees in a perfectly frost-proof repository they had much better be in the open air, where the sun can strike the hives as much as possible. Protection from prevailing winds is also an advantage, and this is best done by buildings and high board fences; but don't cut off the sun unless you can give them something better. I fear the stovepipe would at times make the room too warm, and thus cause trouble.

FOUL BROOD IN A SMALL APIARY, AND A SURE AS WELL AS SENSIBLE CURE.

I notice in GLEANINGS for Aug. 1 that you have foul brood in your apiary, and that you are destroying all combs affected with it, which I think is the shortest and surest cure you can practice. In my experience, one year ago, with the same trouble, I succeeded in curing it with but little time or expense. I will tell the experience I had with it. I will first state, that I was taken sick about the first of February, 1885, and was not able to attend to or look after my 15 colonies of bees till about the middle of June. By this time I had lost 8 of them with foul brood, and the other seven were in a horrible condition when I first looked them over in June, when I was not able to do much work; but by a strong determination I prepared 7 hives with full sheets of fdn., and then I built a small fire by piling old rails and brush together, and then I commenced operations. I went to my first hive and found the queen and caged her; then I removed the old hive from the stand, bottom-board and all, and replaced one of the clean ones, filled with fdn., and laid the caged queen on the top-bars of the frames, and put on my quilt. Then I went to my affected hive and took out a frame and shook off the bees and then pitched it on my fire, and so on until I had the whole 7 treated in the same way, burning up combs and frames, hives, bottom-board, and all. At night I closed in the bees for 48 hours, with a wire screen, and then I let them out and liberated the queens, and that was the last of foul brood I saw among my bees, and I think I am entirely rid of it, as there has none appeared up to date.

Bees are doing fairly in this section. My best colony will make over 100 lbs.; I think they will average 75 lbs. per colony. P. D. MILLER.

Grapeville, Pa., Aug. 7, 1886.

You did exactly right in treating your colonies in the way you did; but with our large number of colonies it would be rather expensive business. We hope to cure it by the treatment we have been giving. Should we fail, however, we may burn every thing except the bees.

NOVA SCOTIA, AND ITS HONEY RESOURCES.

I am a native of the U. S. I came here from Alliance, O., last fall. I have found two kinds of clover which I think bees can work on. The clovers grow very tall—as tall as the large red; the blossom of one is white, the other red. Are these alsike clovers? This is a great country for the honey-bees, but the industry is in its infancy. Wild flowers and white clover are abundant. The main trouble is in wintering bees. I have begun with a new swarm, and the hive—old upright—has in it already at least a bushel of brood and honey.

REV. G. L. RANKIN.

Lunenburg, Nova Scotia, July 12, 1886.

Friend R., we are glad of your report, and trust you may be successful in introducing bee culture into your far-away home. Some years ago we had a correspondent who gave us some very fair reports from Nova Scotia, but we have not heard from him of late.—Alsike clover is much like white clover in appearance, only the leaves and blossoms are larger, and the petals, instead of being white, are tipped with pink. In fact, the appearance indicates just what the plant is—a cross between the white and red clover.

THE VALUE OF A QUEEN NOT DEPENDENT UPON HER SIZE OR LOOKS.

June 11 you mailed me an Italian queen, *untested;* and as you particularly state in your catalogue that you make no choice in sending dollar queens, I mentioned nothing about wanting one of particular beauty, etc. When she arrived, which she did in good time, I must confess I was greatly disappointed, for she could hardly be distinguished from her attendants. Nevertheless I put her with the hive, and the bees having accepted her I watched and waited for developments. She has proved herself a very treasure, having filled every thing with brood, and keeps it up. Now, if she were only a little different from the rest in size, I would not part with her for considerable; but as my frames fit the hives too closely I am almost afraid to open them, fearing that I may kill her majesty while putting the frames back in place. If I could tell her I could guard against any such catastrophe.

A. R. COMSTOCK.

Sayville, Suffolk Co., N. Y., July 19, 1886.

AN A B C SCHOLAR'S EXPERIENCE IN DIVIDING.

I have your A B C book, and have gained a large amount of information from it, but am now in a puzzle.

A few days ago I divided a very strong colony, and made two of it. I put 5 frames in the new hive, about one-half of which was brood, the other half honey. Last night when I opened it to see how they were coming on I was astonished to find the honey *entirely* gone, no sign of any, and a large amount of young bees hatched out, and some dead ones in the bottom of the hive. Now, what became of the honey, and how shall I operate?

Philadelphia, Pa. F. W. TAYLOR.

Your nucleus has been robbed, friend T. When you make an artificial colony, you must be sure that the bees have learned to defend themselves. If you will make the entrance small, the young bees just hatched out will very soon keep out robbers. The best way to feed them to keep them from starving will be by means of a comb of brood, bees, and honey, from the parent hive. Sometimes the bees that are old enough to fly will go back to the parent colony, taking all the honey with them. This may be the case with your bees.

AN UNUSUAL EFFECT OF ATTACHING A DRONE-EXCLUDER TO THE ENTRANCE.

Will you kindly give your opinion on the following case, through GLEANINGS? Last Sunday, Mr. John Oliver, a neighbor of mine, had a swarm come off. He hived them, but they almost immediately left the new hive and returned to their old home. He then put on a drone-excluder in front of the old hive, and went to church, satisfied in his own mind that he had fixed them this time. In the evening, on examining them, he found the combs all down and the bees either dead or dying; but there was quite a lot of bees clustering outside. The hive was under a shade-tree. It had not much honey inside, but combs were well filled with brood. The frames are 12 inches wide by 15 deep, and not wired.

Friend Oliver's theory is, that when, finding the drone-excluder on, they became so exasperated that they ripped every thing to bits, and so brought the misfortune on themselves. My opinion is, that the hive had become overheated, and that the combs, having no wire to support them, had melted down.

We have had a very fine show of white clover this season; but owing to the extreme heat and want of rain it did not last long.

I met with a curiosity a few days ago while driving through the country. I met with a man who has kept bees for over 50 years, and had never seen a queen until I opened one of his hives and pointed her majesty out to him. J. N. KENDALL.

Ilderton, Ont., Can.

Friend K., your drone-excluder is what made the trouble. The colony was probably a very strong one, and the drone-excluder so hindered them from getting out and in that the entrance became blocked, and a stampede ensued, leading the bees to so cover every crevice that afforded air that the inmates of the hive were smothered. In such a case the heat of the hive will run up until the bees, brood, etc., get almost scalding hot, melting the combs, and letting every thing fall to the bottom in a sticky mush. Where you find such a condition of affairs in time, you may save the bees by rinsing them in water not too cold, and then drying them in the sun, placed on a coarse cloth or sieve, so the water will run off and allow them to get dry. When bees get smothered in this way they disgorge the honey in their sacks, and this is sufficient to make the whole mass about as wet as if they were drowned in honey. Sometimes a portion of the bees will escape, and cluster on the outside of the hive, as you suggest. We have sometimes saved these daubed bees by putting them in the upper story of a chaff hive, allowing the inmates to lick them off. By the time they get down to the entrance they will be all right; but if you let them loose when thus daubed they will crawl out in the dirt and die by the thousands.

CEMENT FOR BOTTOMS OF HIVES.

On page 502, June GLEANINGS, it is asked, "Will stone do for bottoms?" Yes, but cement ones are cheaper and better. Take cement, same as for cistern work. Make a mold of a size and shape that will take a wood bottom for Simplicity hive; fill with mortar and strike it off. This sets in a few minutes, and can be removed. I make the most of mine where I want them to remain. I make a little mound of dirt, sand, or sawdust, the height I desire my hive; level off the top a little larger than the bottom; have a frame about one inch thick, and the size I want my bottom inside. Set this on the mound, and fill with mortar, and press in the front, where you desire the entrance, with a suitable thin board; level with the top of the frame, then strike off and lift off your frame. It is cheap and durable—no rot, cracks, nor warp. No patent. They do well here. JOHN CRAYCRAFT.

Altoona, Orange Co., Fla.

TOBACCO COLUMN.

AT WORK ON COTTONWOOD.

I HAVE been reading in GLEANINGS where any one who would quit the use of tobacco you would send him a smoker. I have been using the filthy weed for 14 years, and I determine to quit it. I quit it May 15; and if I ever use the weed again I will send you one dollar for your trouble. I have 10 hives of bees, all in movable comb-frames, and they are at work on the cotton-blooms. I don't know whether cotton produces much honey or not. The honey-crop has been very poor in this section this year, but I think the

prospect is good for a fall crop of honey. Crops are fine in this locality. MOLLIE A. TAYLOR.
Ozen, Ark., Aug. 2, 1886.

HAS USED IT FOR 18 YEARS

I hereby say that I have quit the use of tobacco, after making myself a slave to it for 18 years. You will please send me a smoker, according to your agreement; and I pledge myself that, when I shall commence the use of tobacco I will forward the price of smoker to you. R. J. WEST.
Verona, Mo., Aug. 10, 1886.

I received the smoker all right, and am well pleased with it. I will endeavor to fulfill my contract with you. R. J. WEST.
Verona, Mo., Aug. 21, 1886.

I see that you give a smoker to all who will leave off using tobacco. If you will send me a smoker I agree to let tobacco alone; and if I take it up again I agree to send the pay for it. E. LADD.
Meredith Village, N. H., Aug. 11, 1886.

QUITS IT AT 45 YEARS OF AGE.

C. C. Lee requested me to say to you that he learned to use tobacco before he can remember, and has used it all his life. He is 45 years old. He says if you will send him a smoker (he has quit), if he ever uses any more tobacco he will pay you for it. W. D. TITCHENELL.
Pleasant Hill, West Va., Sept. 9, 1886.

I presumed that the promise to pay for the smoker upon becoming a smoker was implicit; in fact, a necessary inference, at all events. I consider myself bound in honor to pay for the same, accordingly to conditions named by you.
Woodstock, Ill., Aug. 8, 1886. A. W. CUMMINS.

DON'T CRAVE IT NOW.

You sent me a smoker when I quit the use of tobacco. I have never used it since, and I don't crave it now. It has been a great help to me. I have not been sick a minute since I quit the use of it. ROUSSEAU HURD.
Mt. Erie, Ill., July 20, 1886.

I have not used any tobacco since May 31, and have determined never to use any more. You may send me one of your smokers, if you see fit to do so; and should I ever use tobacco again I will send you the price of the smoker. MYRON I. NORTH.
Novesta, Mich., Aug. 18, 1886.

My neighbor has been induced to give up the use of tobacco, and requests me to ask you to send him a smoker. He promises to pay for the same if he ever uses tobacco again in any form.
San Augustine, Tex., July 30, 1886. D. W. MOSS.

A BETTER SUBSTITUTE FOR QUIETING BEES.

I see in your Tobacco Column you are giving smokers to encourage men to quit using tobacco. Now, I am a beginner in keeping bees, also in smoking. I am 36 years old, and never kept a pipe in my house until I thought I had to in order to sicken my bees; but it sickens me sometimes worse than it does the bees. If you send me a smoker I shall not be obliged to smoke with a pipe. I am well pleased with GLEANINGS and with the A B C book you sent me. I think no one keeping bees can afford to be without either. I would not take many times their cost and be without them.
Sandusky, N. Y., Aug. 21, 1886. R. G. LEWIS.

HAS GONE TO STAY.

I have given up tobacco, and it has gone to stay. Although I have never been a habitual user of the weed, I found that it was beginning to get the better of me, and, not desiring to become a slave to the vile stuff, I made up my mind that I would quit; and so, throwing away that filthy cigar, I said, "That's the last tobacco that shall go into my mouth, and I will keep my promise." Now, I don't want a smoker, but I should like to have the book entitled, "A Dose of Truth," which perhaps may help me along in this one good act of my life.
EMERY E. BENDERS.
Aspers, Adams Co., Pa., July, 1886.

Friend B., we notice you fought the battle with tobacco near the place where the battle of Gettysburg was fought.

FRIEND ERWIN TAKES THE PLEDGE, AND MORALIZES ON TOBACCO IN POETICAL MEASURE.

I just received your postal, requesting me to pay for the smoker if I ever use tobacco again. I promise to pay you for two smokers if I ever use tobacco again in my life. I took a pledge when I was a little boy about 8 years old, never to use intoxicating liquors as a beverage, and I have kept that pledge 42 years, and feel sure I can the rest of my days. I know I can do the same with tobacco.

That pernicious weed, whose scent the fair annoys,
Unfriendly to our highest joys;
Its worst effect is banishing for hours
The sex whose presence civilizes ours.
It is, indeed, the drug the gardener wants,
To poison vermin that infest his plants;
Are we to wit and beauty quite so blind
As to despise the glory of our kind,
And show the softest minds and fairest forms
As little mercy as the grubs and worms?

F. M. ERWIN.
Newhall, Los Angeles Co., Cal., Aug. 6, 1886.

KIND WORDS FROM OUR CUSTOMERS.

THE A B C.

The A B C of Bee Culture is at hand. I am delighted with it. It is rich with illustrations, and replete with interest. Every page is ablaze with inspiring thought. G. A. FARRAND.
Rockport, O., Sept. 18, 1886.

HOW OUR HIVE MATERIAL FITS.

If ever I had fun it was in putting those queen-hives together, which you made to order for me; every thing fits nicely. I believe I now have the very best queen-rearing hives in use.
Groesbeck, O. W. S. POUDER.

THE GRAMMAR CLASS IN BEE CULTURE.

I am very much pleased with Ernest. I believe if he lives he will be to the "grammar class" what his father has been to the A B C—viz., an honest, earnest guide. I like especially his style of dropping a word occasionally for his Master, and wish him the heartiest success. GEO. W. BLAKE.
Cape May City, N. J., Sept. 8, 1886.

[Thanks, friend B. Your kind words are not without encouragement. Yes, dear friend, I hope I shall ever try to drop a word for the Master.]

OUR UNTESTED QUEENS.

The tested queen you sent to me in June last is a prize to me. I would not take $25 for her and her colony. Her workers are of a beautiful bright yellow, very gentle, and as smart workers as I ever had in my apiary. They all show three bands distinctly, and that when they are entirely empty. I do not think they can be excelled by any.
Lonoke, Ark., Aug. 16, 1886. A. J. BLACKFORD.

REPORTS ENCOURAGING.

FROM 10 TO 19, AND 300 LBS. OF HONEY.

OUR bees have done well this summer. We increased from 10 to 19, and have taken nearly 300 lbs. of section honey, mostly white clover, and expect more. **FRANKLIN FICKES.**

Blackleysville, Ohio. Sept. 6, 1886.

My bees have been swarming all summer, and now honey is coming in with a rush. **J. C. MERRIMAN.**

Deckersville, Mich., Aug. 7, 1886.

HONEY-CROP LIGHT.

The honey-crop is light in this section. I shall have only about six tons; ordinarily I should have fifteen. I am holding it for better prices, which are sure to come. **S. Z. MILLARD.**

Banning, Cal., Aug. 28, 1886.

I have 30 swarms of bees, mostly black bees, a few hybrids; some of my swarms have given me 80 lbs. of fine box honey to a colony, and two new swarms. **BENJ. OLLERENSHAW.**

Lima, N. Y., Sept. 2, 1886.

A GOOD SEASON.

We have had a very good season so far—plenty of rain all summer, and bees have done well on white clover and blue thistle. If they had all been in good shape in the spring we could easily have made 100 lbs. of comb honey per colony; but as it is, some will exceed 100 lbs., while all will average over 50 lbs., spring count. The honey is of nice quality. **H. W. BASS.**

Happy Creek, Warren Co., Va.. Aug. 9, 1886.

FROM 84 TO 125, AND 5000 LBS. OF HONEY.

We are having a terrible drought here at present, not having had sufficient rain to do much good since the fore part of May. However, the bees have done remarkably well, and bee men have no reason to complain, except at the low price of honey, which is retailing at 12½ cts. for comb in 1-lb. sections, and 8⅓ for extracted. My report is as follows: 84 colonies, spring count; increased by natural swarming and building up nuclei, to 125; took 3000 lbs. of extracted, and 2000 lbs. of comb honey in sections. Bees are in good condition now.

Oskaloosa, Ia., Aug. 27, 1886. **S. L. SHERMAN.**

FROM 24 TO 40, AND 3700 LBS. OF HONEY; FIRST PREMIUM ON HONEY, A LA A B C.

I began the season with 24 stands, about 20 of them strong. I increased by natural swarming to 40 stands, and took 2300 lbs. of honey, 1700 lbs. of which was comb honey, mostly in 1-lb. sections. I use the "Langstroth-Simplicity" hive, and think it can't be surpassed for taking comb honey in 1-lb. sections. This has been a splendid season, both for quality and quantity of the honey-crop. The bees had a long run on white clover and a short but heavy run on basswood. Since basswood ceased, my bees have gathered enough fall honey to put them in splendid shape for winter. I got the first premium on both comb and extracted honey at our county fair this fall, the result of knowing how to take comb honey in nice shape, which I learned from the A B C book and GLEANINGS.

Browntown, Wis., Sept. 16, 1886. **HARRY LATHROP,**

NOTES AND QUERIES.

REARING QUEENS IN GREENHOUSES.

ABOUT those bees in greenhouses, to make cucumbers bear, don't you think that is the place to breed queens and mate them? **A. W. DENNISON.**

Sherburne, N. Y., Sept. 24, 1886.

[Friend D., the idea was talked about a good many years ago, and considerable experimenting was done in trying to get queens fertilized in wire-cloth houses and in greenhouses; but it all resulted in failure, although a great deal of money was expended in the matter. With the bees working as naturally as they do in friend Rawson's cucumber greenhouses, very likely it might be done, but I hardly think it would succeed, even then, enough to make it practicable. If the colonies in the greenhouse are fed up to the swarming-point, so as to make the hive produce drones, perhaps it could be managed.]

GROWING SWEET CLOVER SUCCESSFULLY.

I sowed five acres more of sweet clover this year. I was surprised to hear that Dr. Miller could not get a stand of it. I have no trouble at all in getting it to grow. In the fall is the best time to sow it.

Hillsdale, Ia. **E. W. PITZER.**

HONEY SEASON ABOUT OVER.

Coreopsis, Spanish needle, did not yield abundantly, on account of dry weather. I realized about 50 lbs. per colony, and have a little to extract yet. There will probably be 8 or 10 lbs. more.

Iola, Ills., Sept. 18, 1886. **GEO. WISEHEART.**

HONEY ICE-CREAM.

I made it last year for the State Fair, and it took well. Now I regularly keep it in my store, and it is much liked, and sells. It is simply using the finest white-clover honey for flavoring, and not getting it *too sweet*. This is another avenue to dispose of honey; it is only a little, but the little helps. **ARTHUR TODD.**

Germantown Ave., Philadelphia, Pa.

A POOR SEASON.

The honey season has been a poor one in this locality this year. I commenced the season with 86 good strong colonies, and have taken 1000 lbs. of comb honey and 900 lbs. of extracted, and increased to 125 colonies. I shall have to feed some, as the bees did not fill up from basswood. This is not a very good report, but it is the best I can do this year. **B. B. WESLEY.**

La Grange, Lorain Co., O., Sept. 14, 1885.

EGGS FAILING TO HATCH.

We have in appearance a very fine queen, a daughter of the one we purchased of you. She was reared in a two-frame nucleus, July 12 being the day of her birth. She now has five frames, mostly filled with eggs; some were laid fourteen days ago, and we have failed yet to see the first egg hatch. Will you kindly inform us what the trouble is? **A. E. HARKER & BROS.**

Hornerstown, N. J., Aug. 4, 1886.

[I can not tell you *what* the trouble is, friend H., but I can explain that the phenomenon is not new. Perhaps one queen in five or ten thousand will lay eggs that never produce larvæ, like the one you have. It is simply an accidental physical defect.]

CANADA THISTLES, AND HOW ERADICATED.

In regard to Canada thistles, I got the best of a patch about 10 by 12 feet by pulling them up just after a rain. It was rough on the thumb and finger, but I cleaned them, and there has not one shown itself for two years now. I pulled some with roots two feet long. ED. H. BAGGALEY, 13—39.

Weston, O., July 19, 1886.

[Friend B., I am pleased to tell you that I have also got ahead of the Canada thistles on our little patch; at least, they are getting to be scarcer and scarcer, and now they have almost ceased to sprout. My plan is to dig the ground over with my fingers about once in three days. From this repeated digging, it has now become so fine that it is just fun to hunt it over for the smallest sprout. I hardly think it will manifest itself at all another season. On a large scale, I would use an Acme harrow.]

CAN WE PRESERVE THE AROMA OF NEW HONEY?

Is there any method by which the aroma of freshly extracted honey can be secured to the honey during the year? Will fruit-jars sealed do it?

St. Paul, Minn. WM. WAKEFIELD.

[Yes, my friend, sealing it up as soon as it is gathered will do it, providing the honey is not so thin that it soon sours; but, by the way, I think I would rather have it after the aroma had some of it departed—basswood honey, for instance; or, if you please, honey from seed onions.]

NOT A SMELL OF BASSWOOD.

There was not basswood honey enough this year to give me a smell of it. Last year it seemed to be as abundant as white clover. Bees have gathered more than usual from buckwheat, and will get some from goldenrod; but we do not count much on this for surplus. J. L. HUBBARD.

Walpole, N. H., Aug. 23, 1886.

DROUGHT AND BUG-JUICE.

Inclosed find one dollar, to pay for GLEANINGS another year. I did not make this dollar from the bees. Drought and bug-juice are responsible for it. I increased by natural and artificial swarming from four to twelve. All are very strong but three. I have taken but about 50 lbs. of comb honey.

Bloomingburg, O., Aug. 14, 1886. DAVID LONG.

PURE ITALIANS AHEAD OF HYBRIDS AND BLACKS.

My report for this year is, with the majority, very short. Spring count, 20; one weak; increased naturally to 38. I have taken about 300 lbs., mostly extracted. It has been a very poor year for honey, and a large number have lost all or nearly all their bees. I had to double back to 33 stands, which I hope to winter without feeding. My pure Italians beat both hybrids and blacks, they having gathered all the surplus I had. C. E. JENKINS, 20—33.

Bryan, Texas, Aug. 23, 1886.

THE INTENSIVE SYSTEM.

Nine years ago I started in the bee-business; those nine years have been years of pleasantness, and I think I have succeeded nicely. I have 50 strong colonies and 60 nuclei, and that is as many as I care to keep, as I run them on the "Intensive System;" that is, the greatest possible gains with the facilities afforded. The phrase, "Intensive System," I learned from Rev. Sam Jones, but I believe it is orignal with me when applied to bee-keeping. WALTER S. POUDER.

Groesbeck, Ham. Co., O., Sept. 13, 1836.

MOTH, AND HOW TO GET RID OF THEM.

The best moth-trap that I have ever heard of is this: Take the refuse, after rendering combs, and keep in a box or bee-hive in the apiary, and the millers will congregate on the chunks of refuse and deposit their eggs; and by looking over the refuse every morning the bee-keeper can destroy lots of millers. Of course, the best protection to combs is a strong colony of bees; but nuclei have to be protected, and I find it pays to destroy all the millers I can. J. B. RAPP.

Owensville, O., Sept. 1, 1886.

[The Italians are the best moth-traps we know of. In our apiary, exclusively Italians, we have never been troubled with moth.]

A CORRECTION.

I notice just one typographical error in my article of the 15th of Aug. The word "boiled," 2d line, 2d column, page 644, should be "bolted."

London, England, Sept. 6, 1886. S. CORNEIL.

OUR OWN APIARY.

DOMESTICATING BUMBLE-BEES.

LAST week, as I was passing through the apiary my attention was arrested by the apiarist calling to me something in this wise: "Ernest! Ernest! hello there!"

"Well," said I, "what'll you have?"

So saying I peered this way and that through the long rows of grapevines shading the hives. Finally, through the leafy avenues I espied a hat whose owner, as he neared me, called out, "Just come here a minute." I followed, morally certain that he had found a hive badly infected, or that a colony was doing some unaccountable thing which he could not explain. We halted in front of a Simplicity bottom-board, from which the hive-body had been removed. Nothing very peculiar about that bottom-board, thought I, while with the smoker, in the meantime, the apiarist gave a few puffs under it. This done he slowly lifted one edge of the board.

"*Apis Americana* (?), and successfully domesticated too," said I, as the apiarist pulled the straw over and handed me a few cells of honey.

Perhaps from an enumeration of some of the characteristic qualities of these bees, some of our hay-making juvenile friends may recognize the species. They are a large bee, as large as acorns, and in color not unlike Carniolans—distant cousins, may be, though I will not say positively. Their numbers vary from one to three dozen. Strangest of all, their surplus honey is stored below, and their brood is above. They are very peaceable when handled with smoke, as we had no trouble with them; but when handled with paddles in youthful hands, small boys are loth to call them any thing else than terrors—at least, that was formerly my verdict against them. Their honey is delicious—at least, so says the editor of GLEANINGS. I have often heard my schoolboy friends pronounce bumble-bee honey superior to any thing else. These bumble-bees can be handled with smoke as readily as the Italians. In fact, we take pleasure in showing them to visitors and others. They neither have stung nor have offered to sting; in fact, I think if the juveniles manage it rightly they can handle them like kittens.

I mention these facts to show what may be done with these clumsy lovers of sweets, and perhaps our juvenile friends and others may be interested enough in their peculiar habits to give them a trial —not that they will yield any large returns in honey, for the comparative amount of honey stored by them is very small. Our bumble-bees have stored, I should think, a little over a pound of honey, all told. As the bees themselves die off on the approach of winter, and their queen "hibernates," they gather only enough to supply present needs.

IGNITING FUEL IN SMOKERS.

On page 723 our friend J. A. Green tells how to light the fuel in smokers by means of a common oiler filled with kerosene. Of course, I *knew* it would work, but I always like to try a thing, nevertheless. I took one of our oilers from the ten-cent counter and filled it as directed. I then prepared my Clark smoker, as described in this department of the previous issue. This done I sent a couple of squirts from the oiler on the fuel, and dropped in a lighted match. I hardly need tell you that I had some hot coals in a twinkling; and what a smudge when I filled the fire-box level full with sawdust! How simple! and why did we never think of it before? No, brother bee-keepers, if you once light your smoker in this way I think you will never have occasion again to fuss with your wife's kitchen stove for a "few coals." Although I have had good success igniting the fuel in my smoker with a match and fine fuel as I have before described, I think I shall hereafter use the oiler. Why? Because it is much the quickest way I know of; and, second, it is a matter of little consequence whether the rotten wood be dry, finely pulverized, or coarse, the oil will quickly convert them into hot coals. The sawdust or shavings can then be dumped in without fear of putting out the fire.

THE IMPORTANCE OF GIVING YOUR OWN PERSONAL ATTENTION TO YOUR APIARY.

I have been waiting for two or three days for an opportunity of carefully examining personally the colonies in the apiary, but it has rained and still rains (the equinox is at hand). In regard to personally examing the hives, I would say that you may have an apiarist ever so careful, yet, as I have learned from experience, it is well to review his work. One or two instances will illustrate:

The last time going through the apiary I discovered that the frames were spaced too far apart in anticipation of winter; but at this particular time red-clover honey was coming in quite freely. The consequence was, many of the combs were bulged out of proportion; brace-combs were built in between, and in one or two instances there were newly built pieces of comb with brood in. As the apiarist had not anticipated such a heavy flow of honey at that time (about Sept. 12th), he had so spaced the combs. He should have waited until he was ready to pack the colonies in chaff. Again, in going about half way through the apiary I had found five or six cases of foul brood, when the apiarist had, only a day or so before, discovered but one in the whole apiary. I do not attribute this difference to any skill of my own, but I *did* feel as if the whole trade in bees and queens during the next and following seasons depended upon how *thoroughly* I did my work, and that if a *single* case of foul brood escaped my notice there would be no use trying. Realizing this I not only examined one frame but every frame. If I could not detect the familiar odor of foul brood I did not then feel satisfied of its absence, but opened any cells of doubtful appearance, and in this way in two or three instances I found diseased cells. Had I depended upon the odor or the general appearance of the combs, I should have pronounced a few colonies perfectly healthy when they were in reality actually diseased.

I do not wish it understood, in going thus into details, that I take this opportunity to criticise the manner in which our apiarist has done his work, for in many things he has shown himself *very* careful, but to illustrate the importance of going over the work yourself. The trouble was, the apiarist did not realize, and, indeed, perhaps could not *feel*, the supreme importance of handling foul brood thoroughly, as I did. I well recollect, when I first began handling bees, some eight or ten years ago, how father used to "lecture" me on doing things in the apiary just *so*. He would review my work, and, if carelessly done, I *heard* from him. Although I sometimes felt discouraged, that sort of rigid tutorship did me good, and made me to feel that handling bees is not play, but that it is a trade, and as such it should be thoroughly learned. ERNEST.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, OCT. 1, 1886.

Hold thou me up, and I shall be safe.—Ps. 119: 117.

WE are pleased to inform our friends that our subscription-list is still running up. Up to date we have 5904, nearly 6000. Many thanks for your patronage.

NEW GARDEN SEEDS.

SEVERAL of the friends have been wanting to know when we should have new seeds to send out. Well, we have already new seed of Boston market lettuce from selected heads, and Chartier radish.

FOUL BROOD AND CANADA THISTLES.

BOTH are killed out, so far as we can discover at the present writing. We are, however, on the alert; and just the minute we can detect the presence of either we are going to stamp every trace of it out of existence.

CURTAILING CONTRIBUTIONS.

As a rule, we prefer to put in every article as it is received, entire; but where a contributor gets into a habit of being too lengthy, or, in fact, where he seems to threaten to take so much space that other good men can not be heard from, we have no other way to do than to cut his article down; and we shall do this, even if he be the best writer we have.

TO PRESERVE GRAPES WITH HONEY.

OUR friend Mrs. Axtell, of Roseville, Ills., sends us the following clipping from the *Iowa Homestead* in regard to the subject:

> Take seven pounds of sound grapes on the stems, the branches as perfect as possible, and pack them snugly, without breaking, in a stone jar. Make a syrup of four pounds of honey and one pint of vinegar, with cloves and cinnamon to suit (about 3 ounces of each is the rule). Boil them well together for twenty minutes; skim well, then turn, boiling hot, over the grapes, and seal immediately. They will keep for years, if you wish, and are exceedingly nice. Apples, peaches, and plums may be done in this way.

PEACE AND PLENTY.

As a rule, I believe we are as a nation blessed with an abundance of almost every thing; and whatever you need to buy can generally be procured in good quality and quantity for a small amount of money. While this is a little hard on producers, it is, on the other hand, a blessing to the purchaser. Please let us remember this when we are inclined to think we have to work hard for tolerably small pay.

A 40-HORSE-POWER ENGINE FOR SALE CHEAP.

SEPT. 29.—Our new automatic cut-off 90-horse-power engine has just been started to-day, and is ready to drive the machinery in all our buildings. This is the Buckeye engine, built at Salem, O., the engine which won gold medals at the Centennial, the New Orleans, and the Cincinnati Expositions. Now, we want to dispose of our 40-horse-power engine which has done such faithful work for us for the last eight years. It is a standard plain engine, Lord & Bowler make, 12×20, with a 9-foot balance-wheel and a 6 foot fly-wheel. We will offer it, put in good repairs, for $350.00. We will throw in the stone upon which the bed-plate is bolted, free of charge. For further particulars, write us. Whom shall we hear from first?

TRAINING GRAPEVINES OVER BEE-HIVES.

OUR 500 Concords that shade our bee-hives are just now giving the finest and largest crop of grapes they ever produced. Many single vines fill a ten-pound basket of great heavy handsome clusters. As there are about 500 vines, you can believe the apiary presents a beautiful appearance. I tell you, it is real fun to go out and show folks the bee-hives and then pass around the fruit. Almost every visitor exclaims, "Why, how is it that your bees do not eat the grapes?" Well, it is a little funny, but not a bee is to be seen on any one of the thousand bunches of fruit that hang right over their hives. But when we gather baskets of grapes, and put them out in front of the store, waiting for customers, the bees just make a regular raid on them. Do you see why? Why, it is very simple. The grapes are so ripe that it is almost impossible to pick them and lay them in baskets without bruising or bursting more or less of the berries. The bees then have a regular picnic sucking out the juices. If you think the plan of training Concord grapevines in front of bee-hives, as laid down in the A B C book, is all "on paper," as one or two friends have expressed it, just pay us a visit now. We are getting 3 cts. per lb., or 2½ cts. for 10 lbs. or over; 100 lbs. or over, 2 cts. per lb.

DIGGING POTATOES AT THE RATE OF A BUSHEL IN SIX MINUTES.

I HAPPENED to be down at the creek bottom where one of our men was digging "Dakota Red" potatoes. The crop was raised according to Terry's instructions. A man was throwing them out with a potato-fork, and a small boy was throwing them into one of our bushel boxes. I thought they were making pretty good progress, so I glanced at my Waterbury watch, and, to my astonishment, a good plump bushel was thrown out and picked up in just six minutes. The man's wages is 15 cts. per hour, and the boy's 5 cts., so you can see it cost me just two cents a bushel to dig the potatoes and put them in the boxes. I do not know what the cultivation cost, but the ground is so nice and mellow that it did not cost very much. Now, there are other places on our ground where the man and boy would do well if they got a bushel in a whole hour. Do you see the point? Poor ground can be made, by proper care, to do as well as the best; and you have to go through all the motions with a poor crop, almost, that you do with a good one.

THE HEN THAT ALWAYS LAYS EGGS.

IT is the same hen I have told you about, friends—the cross between the Plymouth Rock and Brown Leghorn. She commenced to lay in February, and is still laying during these last days of September. Now, I want to ask the poultry-friends, Why not breed from such fowls as these, rather than from those that show more or less of the "100 points" as a standard of excellence? I have looked the poultry-journals over, to see if I could find any one who has bred for eggs, without regard to any other qualities. Why, it seems to me I could almost afford to give a thousand dollars for a thousand hens that would do as well as this one. You may ask, Why not do the same thing with bees? That is it, exactly. Why not give our strength and energies to the production of *bees* that gather *honey*, and *fowls* that lay *eggs?*

LETTUCE FOR POULTRY.

IT seems to me a little singular that our poultry-journals do not have more to say on the above subject. We had just started a fine plat of lettuce, which we expected to head up about Thanksgiving time; but that brood of thirteen Brahmas we told you about went for it with such greed there would hardly have been a leaf left in 24 hours. We tried giving them corn, wheat, mashed potatoes, and other things; but, no, they considered thrifty rank-growing lettuce leaves a good deal better than any of it. Finally we transported the brood down to the carp-pond; but they found another lot of lettuce down near the creek bottom, and began paying their respects to that. This latter patch was, however, so large and thrifty we thought it would grow as fast as they could consume it; but I tell you, 15 or 20 half-grown Brahmas will consume a pile of lettuce. Now, then, why not let them have it? Lettuce-seed scattered where we have dug potatoes, or taken up some other crop, will make an amazingly rapid growth in the fall, and it does not cost any thing of any account, except the seed. Some good old stable manure raked in with the soil will help the lettuce amazingly. Cabbage and lettuce will often start hens to laying when they will not lay otherwise. We have quite a quantity of Hanson lettuce-seed that we will send by mail at 10 cts. per ounce, for the above purpose, if you don't happen to have seed of your own. The seed is three or four years old, but it germinates beautifully, and pleases the Brahmas, I tell you.

DAIRYMEN!

For only $1 and this adv't we will send the **Dairy World,** best and largest dairy journal published, (price $1) one year; one **Sumner Cream Tester,** price $1, for testing milk of 6 cows at one milking; one **Perfect Milking Tube,** price 50c, for cows with sore or obstructed teats; one **Hazard's Butter Making,** a guide to good dairying, price 25c—all for $1. Address THE DAIRY WORLD, 61 LaSalle St., Chicago, Ill. Samples free.

CARNIOLAN
QUEENS & BEES A SPECIALTY.

Send for Descriptive Price List and Circular.

9tfd **H. F. SHANNON, Clarksburg,**
(Formerly of Spring Hill.) **Decatur Co., Ind.**

BEE-HIVES,
One-Piece Sections, Section Cases, Frames, &c.,

OF SUPERIOR WORKMANSHIP, FROM

SMITH & GOODELL,

Manufacturers of and Dealers in

APIARIAN SUPPLIES,

ROCK FALLS, WHITESIDE CO., ILL.

3tfd *Send for Price List.*

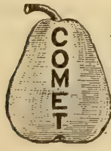
WE have for sale 6 very good tested Italian queens (1 hybrid) at $1.00 each, or $6.00 for the 7. Hybrids, 35c. Send $1.02 to return your money if queens are sold before your order comes.
17tfdb MODEL B. HIVE CO., W. Phil'a, Pa.

PURE ITALIAN QUEENS.

Tested queens, $1.50 each; untested, 70c each; 3 for $2.00; 5 for $3.00. All bred from a select imported mother. By return mail.
15tfdb D. G. EDMISTON, ADRIAN, LEN. CO., MICH

2 H. P. ENGINE FOR SALE.

We have at the factory in Elmira, N. Y., a 2 H. P. engine and boiler that has been rigged up exactly as good as new in every respect. It ought to bring full price of a new one, but in order to get it off our hands we offer it for $150.00.
A. I. ROOT, Medina, O.



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Apple, Pear, Peach, Cherry, Plum, Quince, Strawberry, Raspberry, Blackberry, Currants, Grapes, Gooseberries, &c. Send for Catalogue
J. S. COLLINS, Moorestown, N. J.

FOR SALE!

The whole or part of a No. 1 farm, consisting of 400 acres, 3 miles from R. R. station and county seat, 50 miles from St. Louis. Would prefer to sell one-half only, as my brother who owns it jointly with me has gone back to Europe to stay, and we want to divide the property. Might exchange for a smaller place. For fuller particulars, address
19d GUSTAVE GROSS, Greenville, Bond Co., Ill.

QUEENS ITALIAN QUEENS

Of the best strains, warranted purely mated, $1.00 each; 6, $5.00. Satisfaction guaranteed. Circular and price list free.
CHAS. D. DUVALL,
18tfdb **Spencerville, Mont. Co., Md.**

LARGEST BEE-HIVE AND SECTION FACTORY IN THE WORLD.
GREAT REDUCTION!

Until January 1st, we will sell at a discount. Write for reduced prices.

G. B. LEWIS & CO.,
18tfdb **Watertown, Wisconsin.**

FOR SALE. 60 TWO-STORY SIMplicity hives of mixed bees, complete, for partly comb and extracted honey. Combs built mostly on fdn. in metal-cornered wired frames; honey-house 16 by 24, new, and 10 acres of land. Also one acre of land as building-lot. Price $600. 1719d AUG. LEYVRAZ, Francis, Fla.

Headquarters in the South.
FACTORY OF BEE-HIVES, ETC.
EARLY NUCLEI, ITALIAN QUEENS.

17tfd **P. L. VIALLON, Bayou Goula, La.**

FOR SALE!

350 acres good table land, ½ cleared and in a good state of cultivation; the rest tolerably well timbered; finely situated for stock, fruit, or grain farming; an abundance of fruit and good spring water; good house with 9 rooms, garret and cellar, a large barn, and other necessary buildings. Price $7000.

Also 500 acres adjoining the above, 50 acres cleared, a log house and stable, some fruit, 200 acres of mountain land; the rest nice for farming. Price $3000. Either farm will divide well, and is a good site for an apiary. For particulars address
17-21d H. J. STREBY, Paw Paw, W. Va.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

BEES. QUEENS.

SOUTH FLORIDA.

Carefully reared from **BEST IMPORTED.**

Italian queens (purely mated) - - - -	$1 00
" " (crossed or hybrid) - - -	40

Nuclei, one L. or S. frame, $1.00. Add above price of queen. Also nice large yellow home bred queens, $1.00. *Discount on larger orders.* 19-6db
LUTHER GRAY, Orlando, Fla.

10 COTTON HIVES OF BLACK BEES in frame hives, with their winter stores, for sale. 19d W. H. THOMPSON, East Haddom, Ct.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—To exchange 10,000 Cuthbert raspberry roots, for beeswax, or L. foundation.
17-19db M. ISBELL, Norwich, Chenango Co., N.Y.

WANTED.—Beeswax. Any amount of average beeswax, at 22 cts., cash on delivery.
E. T. LEWIS & Co., Toledo, O.
17tfdb Apiarian Supply Dealers.

ITALIAN QUEENS.—Select tested, $1.00; second grade, 90c; third grade, 80c; untested and unwarranted, 60c, or $6.00 per dozen. 17-18-19d
DR. JOHN M. PRICE, Tampa, Hillsboro Co., Fla.

THOROUGHBRED fowls, Brown Leghorns, S. S. Hamburgs, W. C. B. Polish, P. Rocks and Wyandottes, Bonney's, Forbes', Hawkins', Wilcox & Fultz' strains. We will sell for cash, or exchange for fdn. and beeswax. Price list free.
18-19tfd A. H. DUFF, Creighton, Ohio.

GREAT BARGAIN.—2 printing-presses, 50 fonts of type, cases, rules, leads, etc. Cost about $300; will sell for $125. But little used.
19-20d W. EARLE CASS, Roseland, Essex Co., N. J.

FOR SALE.—I have an imported Clydesdale stallion and a good jack that I will sell low for cash, or will exchange for good land, improved or unimproved; land in South-Central Missouri or North Georgia or South-Western North-Carolina preferred.
H. C. KIRSCHBAUM,
Tolona, Lewis Co., Mo.

ITALIAN QUEENS, tested, $1; hybrid, 3 for $1.
18-20db N. ADAMS, Sorrento, Orange Co., Fla.

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AUTOMATIC ÷ EXTRACTOR

AT 10 PER CENT DISCOUNT UNTIL NOV. 15TH.

Address **G. W. STANLEY,**
20d **Wyoming, N. Y.**

FOR SALE!

The whole or part of a No. 1 farm, consisting of 400 acres, 3 miles from R. R. station and county seat, 50 miles from St. Louis. Would prefer to sell one-half only, as my brother who owns it jointly with me has gone back to Europe to stay, and we want to divide the property. Might exchange for a smaller place. For fuller particulars, address
19d GUSTAVE GROSS, Greenville, Bond Co., Ill.

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

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SOUTH FLORIDA.

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Nuclei, one L. or S. frame, $1.00. Add above price of queen. Also nice large yellow home-bred queens, $1.00. *Discount on larger orders.* 19-6db
LUTHER GRAY, Orlando, Fla.

RUBBER CEMENT, FOR MENDING RUBBER BOOTS, RUBBER SHOES, and all kinds of rubber goods. An article worth its weight in gold, for the saving of health, annoyance, and trouble. Printed directions for use accompany each bottle. Ten cents per bottle; ten bottles, 85c; 100, $8.00. Not mailable.
A. I. ROOT, MEDINA, OHIO.

PREPARE FOR WINTER.

We have unequaled facilities for manufacturing the Root chaff hive at a great reduction from ruling prices. Mr. Zeno Doty, Grafton, Neb., writes July 9th, "Your material, make, and price is far better than I can get anywhere else." Send for price list and special prices for this fall. 16tfdb
A. F. STAUFFER & CO., Sterling, Ills.

GOODS NEAR YOUR HOME, AT A REDUCTION FROM REGULAR PRICE.

We have the following lot of goods at the places named, for which we want customers. Now, it is altogether likely that there is some one located not very far from where these goods are who will be needing just such articles, especially if he can get them a little lower than the regular price, and doesn't have to pay much freight charges on them. In hopes that there are such persons, we append a list of the articles for sale, giving the present value of the goods and the amount we will take for each lot entire. We give a number to each lot, and the name of the place where they are being held, subject to our order. Remember they are all perfect goods, just as fresh and new as if shipped from here. Remember, also, that at the price we offer them we can not break lots; each lot must go entire. In making your orders, please give the number of the lot as well as the articles contained in it, and thus help us to avoid mistakes.

No. 1. Aplington, Iowa.
Ten 2-story portico hives, complete, in flat, for comb honey, including m. c. frames, wide frames, sections, separators, thin fdn. for sec., 7 lbs. brood fdn., and enamel sheets. The lot foots up to $25.30. We will sell it complete for $22.00

No. 2. Union City, Ind.
13 combined shipping and honey crates flat; 90 tin separators for above crates; 26 pieces glass for above crates; 40 metal-cornered brood-frames in flat. Present value, $4.50; will sell for 4.00

No. 7. Nassau, N. Y.
200 wide frames, for 8 1-lb. sections, in flat. Worth $4.00; will sell for 3.75

No. 8. Riverside, N. J.
500 1-lb. 7-to-foot sections. Worth $2 00; will sell for .. 1.75

No. 9. North Walton, N. Y.
100 metal-cornered frames, in flat. Present value, $2.50; will sell for 2 50

No. 12. Caribou, Maine.
900 sections, 4¼ x 5 x 1 7/16 wide, open on all four sides. Present value, $4.50; will sell for 3.50

No. 14. Delaware, Ohio.
35 bottom-boards for Simp. hives; 210 tin separators for combined crates. Present value, $8 75; will sell for 7.50

No. 15 Foster Brook, Pa.
100 wired m. c. brood-frames, in flat, including wire and tin bars. Present value, $3 00; will sell for 2.75

No. 16. Johnson City, Tenn.
One No. 7 honey-extractor, with basket, only 15 in. deep. Present price, $8.00; will sell for 6 00

No. 17. Cairo, W. Va.
One 2 story Simp. hive, rigged complete for comb honey, and 5 lbs. fdn., ½ thin, for sections, and ½ for L. frames. Present value, $5.25; will sell for 4.75

No. 18. Elmira, N. Y.
One 2-H. P. engine and boiler complete. This has been used some, but has been put in as good shape as when new. Price of a new one, $175.00; will sell this for $150.00

No. 19. La Salle, Ill.
6-in. foundation mill. Present value $13.50; will sell for 11.50

A. I. ROOT, Medina, Ohio.

LARGEST BEE-HIVE AND SECTION FACTORY IN THE WORLD.

GREAT REDUCTION!

Until January 1st, we will sell at a discount. Write for reduced prices.

G. B. LEWIS & CO.,
18tfdb **Watertown, Wisconsin.**

2 H. P. ENGINE FOR SALE.

We have at the factory in Elmira, N. Y., a 2 H. P. engine and boiler that has been rigged up exactly as good as new in every respect. It ought to bring full price of a new one, but in order to get it off our hands we offer it for $150.00.
A. I. ROOT, Medina, O.

WE have for sale 6 very good tested Italian queens (1 hybrid) at $1.00 each, or $6.00 for the 7. Hybrids, 35c. Send $1.02 to return your money if queens are sold before your order comes.
17tfdb MODEL B. HIVE CO., W. Phil'a, Pa.

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—There is a fair demand for choice comb honey in 1 and 2 lb. sections, which brings 12@15c a lb. in a jobbing way, according to quality and neatness of package. There is also a fair retail and jobbing demand for extracted honey in square glass jars for table use, while the order trade for dark grades from manufacturers is improving. We quote extracted honey at 3½@7c on arrival, according to quality. *Beeswax* is in good demand, and good yellow brings readily 20c on arrival.

CHAS. F. MUTH & SON,
Oct. 9, 1886. Cincinnati, Ohio.

MILWAUKEE.—*Honey.*—The market for choice comb and extracted honey is firmer, and I am trying to establish a little higher range of values. I will quote 1-lb. sections, white, 12½@13c; 2-lb. sections, white, 11@12c. Dark, not wanted. Extracted, white, in kegs and ½ bbls., 6½@7; same, in tin, 7@7½; same in bbls., as to quality, 5@5½.
Beeswax, quiet.

A. V. BISHOP,
Oct. 2, 1886. 142 W. Water St., Milwaukee, Wis.

BOSTON.—*Honey.*—We report good sales at 14@16c for fancy 1-lb. comb; 12½@14c for fancy 2-lb. comb.

Oct. 12, 1886. BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

CHICAGO.—*Honey.*—The demand for honey is better, with prices unchanged from last quotations. Receipts are quite large, both of comb and extracted. *Beeswax*, 23@25c. A majority of all consignments of comb honey is of excellent quality.

Oct. 7, 1886. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

CLEVELAND.—*Honey.*—There is no change in price; let former quotations remain. A. C. KENDEL,
Oct. 7, 1886. 115 Ontario St., Cleveland, O.

DETROIT.—*Honey.*—There is a good supply of comb honey in the commission houses, put up in every conceivable shape, a large proportion just as it came from the hives. Buyers sort it over and take the most attractive first. Prices remain the same; viz., from 12@13c for the best. Dark, 10@11c.
Beeswax, 23c.

M. H. HUNT,
Oct. 10, 1886. Bell Branch, Mich.

FOR SALE.—1200 lbs. of basswood and aster honey for sale at 5¾c per lb., put up in 15-gallon kegs. Sample sent on application. W. A. COMPTON,
Lynnville, Tenn.

1880.—NOTES FROM THE BRIGHT-BAND APIARY.—1886.

NO FOUL BROOD.

Friends:—I want your patronage. I can ship pure Italian queens by return mail; my stock can not be excelled, and I devote my whole time to rearing queens, and will fill your orders with my own hands. Satisfaction guaranteed. One untested queen for 80 cts.; two, $1.50; or any larger number at 70 cts. each. Send for circular on the "Coming Bee."

HERE IS YOUR CHANCE!

Will deliver on board cars at Shreveport, La., full colonies of bees with untested queen, for $3.25 each (9 frames). Make P. O. orders payable at Shreveport, La., and address your orders to

CHAS. KINGSLEY,
Benton, Bossier Parish, La.

SAY, LOOK HERE! if you want something that will hold all sorts of small things, as papers, almanacs, letters, magazines, cards, etc., and do it quick, before it gets lost or blown away, or the baby tears it, send 10c. for an **Acme Paper-Holder;** two, 15c.; five, 25c.; twelve, 50c. Agents wanted. Address **N. E. JOHNSON, Medina, O.**

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

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REDUCED!

BEE-KEEPERS' MAGAZINE

TO

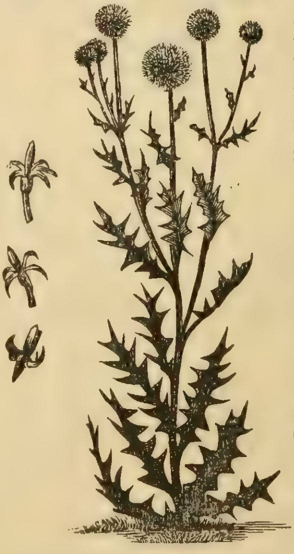
25 Cents Per Year.

FROM JANUARY FIRST, 1887.

SAMPLE COPY FREE.

20-1db **BARRYTOWN, N. Y.**

The Chapman Honey-Plant.



In accordance with a previous notice in bee-periodicals, I am now prepared to fill orders for the seed of the above plant at the following prices: ½ oz., $1; 1 oz., $2; 2 oz., $3; 4 oz., $5; ½ lb., $8. One oz. contains from 1600 to 1800 seeds. On account of extreme drought my stock of seed is limited, and persons ordering will be served in rotation. The seed should be sown in the early spring, and general directions for cultivation will be given on each package.

This plant is not an obnoxious weed, and is as easily eradicated as clover. Having carefully watched its habits of growth, and its honey-producing qualities for the past six years, I believe those who commence its cultivation in a liberal way will be better pleased than by commencing with a small quantity of seed. It has been tested by prominent bee-keepers all the way from Vermont to Nebraska and Ontario. We refer to the report of the committee appointed by the North-American Bee-Keepers' Association held at Detroit in 1885. The committee reported at the Indianapolis, Ind., convention held Oct. 12th to 14th, and their report will be found in all bee-periodicals publishing the report of that convention.

Write all orders plainly, and give your postoffice address in full.

H. CHAPMAN,
Versailles, Cattaraugus Co., N. Y.

40-Horse-Power Engine for Sale.

Our new automatic cut-off 90 horse-power engine is now driving the machinery in all our buildings. Now, we want to dispose of our old 40-horse-power engine which has done such faithful work for us for the last eight years. It is a standard plain engine, Lord & Bowler make, 12x20, with a 9-foot balance-wheel and a 6-foot fly-wheel. We will offer it, put in good repairs, for $350.00. We will throw in the stone upon which the bed-plate is bolted, free of charge. For further particulars, write us. Whom shall we hear from first?

A. I. ROOT, Medina, Ohio.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XIV. **OCT. 15, 1886.** **No. 20.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

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PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18c per year extra. To all countries NOT of the U. P. U., 42c per year extra.

MRS. CHADDOCK'S VIEWS ON BEE-PASTURAGE.

THE STUDENT BUSINESS.

WHEN I began to keep bees I did it with the *distinct* understanding *with myself* that I would never sow a seed of any kind to raise pasturage for bees. I said, "If bees don't pay with what nature furnishes them, then I won't keep bees." So in reading GLEANINGS and the other journals, when I come to an article about any kind of bee-pasture I *skip it.* When I received the A B C book I read almost every thing in it. I do not remember now, but I suppose I skipped all the bee-pasture in that too.

Last week I took a notion to raise some alsike clover, if I can be convinced that it is as good a hay crop as red clover. Mr. Chaddock is willing to sow an acre; but what is *one acre?* I want 20 acres, and I am trying to persuade the farmers near me to sow some of it. I will give them the seed. If it only blooms at the same time that the white clover does, it will be hardly worth while to sow it, for there are not half bees enough around here to gather the white-clover honey. If the first crop is cut while in blossom, what is to hinder the second crop from bearing seed? If alsike is no better for honey than buckwheat is here, then it is useless to sow it for the bees. There has been no honey, to amount to any thing, in the buckwheat around here, more than once in ten years.

HOW MRS. CHADDOCK GOT INTO THE STUDENT BUSINESS.

You ask how I came to go into the "student business." I did not *go* into it; it came upon me, just as other people are afflicted with boils and carbuncles. You know—or, rather, you don't know, that I have a few dozen nieces and a few score of cousins, and several hundred young woman-friends, besides my own daughters, who are always coming to me for advice and help. They all learned, a good while ago, that I was fond of giving advice, and I think they come to me a good many times to tell their troubles when they care not a whit about the advice. They want some one to talk it over with, and so they come to me. They are nearly all "school-marms;" a few are dressmakers, and one or two of them work out. One of the fairest and best of them all is "my student." She is a "school-marm," and a good one. She can earn from $25 to $40 a month teaching, and she likes it. But every once in a while (generally during vacation), she takes a notion to clerk in a store, or be a milliner, a farmer, or something. This vacation she is going to be a bee-keeper. She wears long dresses that touch the ground all around, and has her bangs done up most of the time. She has white dresses to wash every week, and six white skirts. I do not believe she is in earnest; and if she were she has no time for it. That is the reason I do not want to bother with her. But over yonder at the back of our fields lives Mollyony Johnson. She is a Swede girl, 18 years old. She is a little round-shouldered, has red hair, and great big freckles. She is a good girl, and I like her; and if she wanted to stay with me and learn bee-keeping I would take her gladly. She is always laughing; and when she goes to wash the windows she says, "I don't think so I can do it good," but she always *does* do it "good." She doesn't scream when a bee stings her, nor run from snakes, nor wear bangs. I like Mollyony for every-day wear better than I do the "school marm;" though the "school-marm" is bright and smart, and I like her too.

As to hiring out to drive that mule team, I never offered to work for my board in warm weather; I think I am worth more than that. But every winter I am frozen up, and as soon as I begin to house up I get sick and stay sick till warm weather comes. Last fall I made up my mind to go to Florida to spend the winter, if I could find something to do to pay my board while there. I want to be outdoors, and I want to be doing something.

Mahala B. Chaddock.

Vermont, Ill., Aug. 4, 1886.

Mrs. C., I was a little afraid you were a little inclined to be uncharitable toward the "school-marm;" therefore I was very glad to hear you say, toward the conclusion, that you liked her too. These friends of ours have different talents, different capabilities, different missions in life, and very likely they are all lovable, if we come to understand them; and this we can do only by becoming intimately acquainted. And this brings me to my latest hobby, of making it a point to get *acquainted* with people; then you know we shall come nearest to that happy state of loving everybody. Is it not so?

MEDICINE VERSUS HYGIENE.

SOME SENSIBLE IDEAS FROM FRIEND TERRY.

FRIEND ROOT:—On page 773 of Gleanings you give us a very interesting talk in regard to dosing with plants and herbs. I agree with you fully; and if we could get every one else to agree with us, we might do much good. The quantities of medicine given in many families is appalling. Surely a magazine devoted in part to "home interests" can not do better than to protest against this but too common practice of dosing ourselves, or the children, for every little ailment, even with home-made remedies. Then look at the thousands of tons of patent medicines that are sold every year, and, of course, swallowed by some one. Why, only the other day I called on one of the most intelligent men in our town, and found him opening a bottle of patent medicine. His excuse was, "I have been rather out of sorts for some days, and need something to tone me up."

Ever since the writer was old enough to know any thing he has been down on this dosing business, although every rafter in the old garret used to be hung full of dried herbs of every description, decoctions from which were often put on, or into, the other children. Once when I was quite poorly father called in a celebrated physician, author of a work on family dosing. He said I was "bilious," and left a box of pills for me. I was only eight years old; but I had a great horror of pills. Mother fixed one up in a spoonful of sauce and brought it to me. I couldn't and wouldn't take it. Then they dissolved it in water, and tried to make me drink it. At last they offered me a $5.00 gold-piece if I would take it, but I wouldn't. Worried out I finally told them to put it in a raisin and I would try it. I took it in my mouth; and as mother turned to put the spoon on the table the pill went out the open window. Next morning the doctor called. "Why," he says, "he is much better. How beautifully these pills do work! Give another to night, and he will be all right in a day or two." The second one followed the first, and I got well rapidly. It was ten years before I dared tell the story; but meanwhile no pills went down my throat.

Our best physicians now give but little medicine. They know that pure air and sunshine, proper food and exercise, are the best medicines, as a rule. It was a wise man, but rather ahead of the times, who wrote some 30 years ago, that "doctors do precious little when they don't do harm."

Some years ago the writer was laid up by a very badly injured foot. He even got so low that there was a slim chance of his ever being any better. People would come in and say, "Why don't you try this or that? The doctor isn't doing any thing for you." So I asked him one morning if there wasn't something known to science that would help my foot to heal up? He replied, "I am sorry to say that there is not. We can only keep it wet with carbolic acid, and let nature work." I knew he told the truth, and was satisfied. With some natures, perhaps, a harmless substance, put on with strong assurance that it would surely cure, would have been best, so strong an influence has the mind on the body, hence our often wonderful so-called "faith cures." My doctor knew me, and knew that the exact truth was what I wanted, although it was a sad admission for science to make, in view of all the healing (?) salves and ointments that our mothers used to have.

I remember once taking a very hard cold. It made me very sick, and wife sent for the same physician. He came and looked me over and said, "Keep covered up warm in bed, so warm as to be rather uncomfortable, and you will be all right in a day or two." Not much medicine for $2.00, surely; but it proved to be all I needed. In some places, I presume, he would have given some bread pills or sweetened water, "a teaspoonful every other hour." Now, this man is thoroughly posted, and up to the times; and what does he do when *he* feels "bilious"? Take medicine? Yes, the very best kind. He gets out his horse and buggy and drives down to my place. Then he puts on an old suit of clothes, and, with dog and gun, takes a long rapid tramp through the woods and fields, until the sweat runs from every pore of his body. When tired out he comes back, puts on his dry clothes, and goes home all right. This has been his practice for years. How foolish, then, for *us* to dose ourselves with injurious medicines, which the most intelligent physicians, who know all that science has yet taught, on this point, wouldn't think of touching! And how much more foolish, and even wicked, to stuff the same down the throats of the little innocents, every time they cry or are fretful! There isn't a single drop of medicine in our house, of any kind, nor a single herb to make any of. We have always let nature take care of all little ailments, doing what we could to assist her by good care, and for larger ones called an intelligent physician, and I am sure our babies gave less trouble than mother's used to.

I know it is hard to sit idly by and see loved ones suffer, hence we try to prevent it by giving them pure air, sunshine, keeping them clean (of that in my next), feeding them properly, and seeing that they take plenty of exercise. Sickness usually comes as the result of violating the plain laws of health. It is Nature's protest against ill treatment, and Nature is the greatest physician on earth, and seldom loses a patient if given a fair chance. T. B. TERRY.

Hudson, Ohio.

HOW MUCH MONEY CAN I MAKE FROM THIS YEAR'S CROP?

THE PROFIT IN BEE-KEEPING AS COMPARED WITH OTHER OCCUPATIONS.

YOU ask me, on page 732, how much money I made after my tribulations. Really, I do not know, for I have not made it yet. I got, in round numbers, 3000 lbs. of comb honey and 1500 lbs. extracted, with enough to winter on. If I could have kept swarming within any bounds I should have had 1000 lbs. more. Of those 4500 lbs. I have about 4400 lbs. yet. I can scarcely sell a bit of it at any fair price. Last year I put my honey in stores in the villages around, at such a rate as to net me 15 cts. per lb., and it sold pretty well. This year I have put the price down about 2 cts. per lb., and there it is. Why? Simply because all who want it can get it from 8 to 11 cents. I have made efforts to sell some in Springfield, but have found the market completely stocked. I could have sold some at 10 cts., but —I would not—not yet awhile! I must have $400 out of my crop if I can get it, and not till I find I can not will I take any less. For the capital and work invested, that is not a high figure. As I do not expect to average over 8½ cts., if that, for my extracted, I must have more than 10 cts. for comb honey. Every farmer with a few bees had some surplus honey this year, and they have been running into market and lumping it off to get rid of it. They have it in pound sections too. In respect to the shape in which honey is put up, modern bee-keeping has made a wonderful stride in the last three years.

SOMETHING ABOUT OVERPRODUCTION.

I am convinced, however, that there is no use in trying to keep up the price of honey very much or very long. We must simply bend our energies to lessen the cost of production. It is folly to talk about quitting the business. If we do, what shall we go into? Shall we take up farming? For several years the wheat has turned out poorly in this region. This year there was a fair crop, but it is a fact that farmers are scarcely any better off, because of low prices. Last winter the live-stock markets were perpetually glutted, and prices disastrous. During the last two seasons we have had magnificent yields of dairy and poultry products, with consequent overstocked markets, and prices that at times scarcely gave back the cost of production. Shall we try mercantile business? One evening last summer a stove and tinware dealer told me, as an example of the business he was doing, that he had that day taken in 60 cts., while his expenses were $5.00 per day. He was in the business only because another man had failed, and he was on his bond for about $6000. He bought the stock to save himself.

A grocer in the same city, Springfield, of 20 years' standing, told me that the grocery business had ceased to be profitable, largely because there were too many in it. During that 20 years, Springfield has been more and more absorbing the business of the smaller towns around it. Yet there are too many groceries for that business. Always and everywhere we hear the same cry of overproduction or overstocking. I feel that I have quite a burden in the stock of honey on hand, with no demand for it; but I do not appear to be much worse off than most of the others.

There does appear to be

ONE PROFITABLE BUSINESS.

In my conversation with this same grocer I made observations similar to the above, when the gentleman admitted that no business seemed thriving except the saloons. There is a point for us all. This traffic in vicious indulgence lives and grows at the expense of the more legitimate and beneficial pursuits. How many pounds of honey, and how many bushels of wheat or potatoes, might be readily sold that are now glutting the markets, were it not for the millions wasted thus! And, by the way, that same stove-dealer, in our conversation, remarked that business lots on his side of the street were worth only half as much as those on the opposite side, because "the saloons along here" make them so undesirable for business purposes. Amazing fact! Who ever heard of any other profitable business but would enhance, not depress, the value of real estate in contact with it. Bee-keepers, in common with men in other occupations, can none too diligently inquire how best to get rid of this parasite that lives and feeds upon the very life of the business world. Friend Root, you may regard this as a digression, but I do not. I have, however, long been wishing for a chance to drive a wedge in here.

QUEER IMPRESSIONS.

I, too, get mistaken impressions concerning contributors to bee-journals. I was never more surprised than I was to learn that Mr. Heddon is a "little nervous fellow," instead of a burly, solid 250-pounder. A. I. Root, I have always taken to be a short, but thick-set, broad-shouldered, broad-chinned, short-necked man, a little inclined to corpulency as he grew older, with more of the sanguine than the nervous in his make-up. Am I right? GEO. F. ROBBINS.

Mechanicsburg, Ill., Sept. 24, 1886.

Many thanks, friend Robbins. In your remarks upon overstocking you touch indirectly upon the same point brought out by Dr. C. C. Miller—see page 811. You say, last year you sold your honey for 15 cents without much trouble. This year the farmers about you, perhaps incited by your success, have taken up the bee-business. Two results have followed: Your locality has become overstocked, and the price of honey reduced. If you were first in the field, is the honey in the locality over which *your* bees fly yours, or the property of every one else?—Our country is large, and there is an abundance of room for us all.—I believe it is a fact, that the returns from the honey-business average as well as those of other legitimate trades or professions, and I see no reason why we should become discouraged, even if our bees do not pay well some years.—It is true, there is *one* profitable business, and that it is damaging to every other legitimate business: but we hope this state of affairs won't exist many years longer, in our fair land.—Your impression of A. I. Root *is* queer, indeed. He is small, medium build, not thick-set nor broad-shouldered, and, least of all, inclined to corpulency. He is of a nervous make-up, impatient to have things move, and is never at rest during the hours of daylight. ERNEST.

I will add to what Ernest has said, that, as so many friends at the convention asked what I weighed, I have just ascertained. It is 130, and I believe I never weighed any more. For several years I have been averse to getting weighed, because it seems to me too many people waste valuable time in getting weighed every day or two. Now, all this is of but little moment compared with the point you touch upon, that all our industries are overdone. Intemperance is, without doubt, the *greatest* cause of this state of affairs.

NORTH - AMERICAN BEE - KEEPERS' SOCIETY AT INDIANAPOLIS.

IT was my good fortune (as you may guess from Ernest's talk, under the head of Our Own Apiary) to have Dr. Miller for a traveling companion. Indianapolis is a beautiful city. The streets are broad, and, compared with New York and Boston, it is a wonderful relief to see plenty of room for vehicles, pedestrians, and all the business that is to be done. Of course, there is no such amount of business done in Indianapolis as in the eastern cities mentioned; but I think they have done a very wise thing in laying out the city and distributing the buildings, even with the business they do have. Over and over again I was reminded of our old apiary and old home, contrasted with our new apiary and our new home here in Medina. When we commenced here I feared I was spreading every thing over too much ground; but the lapse of half a dozen years has shown the wisdom of having plenty of room, plenty of air, and plenty of sunshine. It seems to me that one of the greatest obstacles in the way of doing business accurately and rapidly, that we have to encounter, is getting things in a heap and disorder, sometimes wasting more time than it takes to do the work, because of having our business *all in a heap.*

The people of Indianapolis seemed to be very pleasant indeed. As soon as we got into the convention and paid our dues we were furnished with a plain neat little badge by Mrs. Robbins, who contributed very much to the success and pleasantness of the whole convention. Where we went through the city we were recognized by these badges as the "bee-men," and it was very pleasant for me to find myself already introduced, wherever I went.

I found that the convention did not open till 9 o'clock on the second day, therefore I had four good hours to "have fun" before the convention opened. My usual hour for rising is 5 o'clock; but at the Occidental Hotel they did not allow anybody to have breakfast until 6, so that blocked my way some. I want to say a word right here about our large hotels—they do not seem to be calculated for busy impatient men like myself. After we sat down to breakfast it was twenty minutes before the waiter brought our viands; and at dinner-time, after we had finished our dinner we had to wait fifteen or twenty minutes more for dessert. May be there is no remedy for this state of affairs; but I would have a remedy in some way or other, at all hazards. The above hotel is a beautiful one, and built exactly as I would have it, in the way of plenty of room and plenty of air. The bill of fare is excellent, especially in the way of fruits and vegetables. Very nice green peas were on the table in October. In the market we saw beautiful strawberries at 50 cents a quart. The vender said they came from the city of New York, but he did not know how nor where they were raised. If any one who reads this can enlighten me on the point, I shall be glad to hear from him. Does any one know what would be the result of cutting off the strawberry-buds in the spring? Would it not make them blossom later? You know that, by pasturing or cutting off alsike clover, we induce it to give a yield of honey after white clover is gone.

Well, after I got my breakfast I started for the market-gardens of Indianapolis. I was abundantly satisfied with my search, and gathered many new ideas. Perhaps I was fortunate enough to give a few ideas to the boys I found on the ground at that early hour. They plant their celery in a double row, the rows being six or eight inches apart, and the plants are set so as to "break joints," as we term it. By this means two rows are banked with the same labor required for one row. As the ground was very rich they secured a fine crop in this way. By the way, they get stable manure in Indianapolis for *hauling it away.* The boys said the owners of the manure sometimes paid them for going after it, when they wanted it removed. They were astonished when I told them that we pay from fifty cents to a dollar a load, according to quality, and can not get enough at that. It seems to me that farmers and gardeners ought not to grumble while this state of affairs exists in the West. Nothing is sold by the pound, or, at least, few things. They sell lettuce in February for $6.00 a bushel; but in October they get only 50 cts. a bushel. I saw a beautiful patch of "multiplier" onions that are to remain out all winter. They say they pull them for market in February. Sometimes they winter-kill badly; but as a rule, enough are left to make the crop a very profitable one. Manure being so cheap, they raise almost every thing in hot-beds, and these cover an immense area of ground. The frames that hold the sash are movable. After they are taken away, manure covers the whole plot of ground from one to two feet. It is now being carted over the ground, preparatory to getting fresh manure from the city for the hot-beds for the coming winter and spring.

I enjoyed my visit exceedingly, and came into the hall at ten minutes after nine, feeling that, with the exercise of the morning, I could easily stand it to sit still indoors from nine o'clock until noon. Doctor Miller, who has been for some time the president of the Chicago Convention, and who is, by the way, to be president of the N. A. Convention, to be held next year in Chicago, remarked to me, while we were traveling in the cars, that it seemed to him that the time of a convention ought to be occupied mainly in getting the opinions of those present—hearing from each one in the room as far as possible. He said that in Chicago they had for many years ruled out essays and addresses. These can be given through the pages of our bee-journals, while a single subject can not be considered by a hundred bee-keepers all at once, except at a convention. It seems to me there is much wisdom in this, although it is true, many times, that it seems to be desirable to discuss essays which have been read.

Discussion on wax-extractors, and the hints communicated by a great number of different people, were very valuable. For instance, friend Dadant said that where wax is extracted by steam, by no means let the jet of steam strike the wax. Run the steam-pipes down into the water contained in the tub or cask. When it gets the water boiling hot, throw in the pieces of comb. Direct steam has a tendency to get the wax into the well-known granular state, from which it is very difficult, many times, to restore it. Many reported having used the sun wax-extractor, and all declared themselves highly pleased with its use. It is practical, however, for only small quantities of wax. Steam is best for a large lot. Put only as much comb into the solar wax-extractor as will be melted quickly, and take away the wax often—each day if convenient. Cappings are rendered nicely with the sun extractor, and the honey that comes from them will be found under the cake of wax, good enough to put on the table. In fact, the honey adhering to the cappings is of the very best quality, although it is sometimes darkened by bits of pollen, etc., that get into it. Friend Dadant says they let their cappings drain a great deal longer than most people. Sometimes they put them on the sieve of the uncapping-can, and let them stand three or four weeks. When all the honey has run out that will run out, put on another lot, and so on. He says they sometimes have several barrels waiting to be thus drained out in the uncapping-can.

The subject of foul brood was discussed at considerable length. Members who had had experience with it gave reports that seemed to indicate to me that the course we have taken is about the best one, all things considered. At the present writing, the disease has not appeared in any case in any of the fifty colonies where the combs were destroyed; and nearly, if not all of them, have been raising brood right along ever since they lost their original set of combs.

The Chapman honey-plant was presented by two of the committee who were appointed a year ago to examine it and report, L. C. Root being absent. All who have tested the plant seem inclined to give it a front place with plants cultivated for honey alone.

Spreading brood to induce the queen to occupy more combs, and to put the brood in a more compact shape, was discussed at considerable length by many very able bee-keepers. I believe the general opinion is, that judicious spreading, in the hands of an expert, may greatly increase the amount of brood on hand at the time when honey begins to come in; but it is also true, that mixing up the combs, before the colony is strong enough to be able to bear it, may be a very great hindrance in getting a colony ready for the honey-harvest.

It is considered quite advisable to contract the colony, during winter and early spring, on to as few combs as will hold the stores and accommodate the queen; and this is best done by movable division-boards. Now, when the queen and bees both need room, *without any mistake*, move the division-boards so as to make room for one more empty worker-comb. Make this empty space pretty near the middle of the combs, and put in here your frame of empty comb. The worker-bees will almost at once prepare these empty cells for the reception of eggs. Very often the queen will have the comb partly filled with eggs before night. As these eggs are deposited all about one time, they require the attention of the nurse-bees almost at one time, and hatch almost at one time.

Whenever I attend one of these national conventions I am powerfully impressed with the advantage it is to any one to meet with the progressive and thinking minds of our age. To look into the faces of these men, and get intimately acquainted with them, is a powerful exhortation of itself. We sometimes get an idea that we are working alone in some of these unexplored fields; but to see some good brother get up and tell how he has gone away beyond us, oftentimes, shows us little conceits that we did not before suspect in our own hearts.

Of course, to get the full benefit of the purpose of the convention, we want every one to give some of his experience, or, at least, as many as possible; and when a single thought is held up so that one after another can give his experience in years past, it reminds me of concentrating the rays of the sun upon a single point by means of a powerful burning-glass.

A REPORT FROM AN A B C SCHOLAR

WHO FURNISHED US THAT NICE SECTION HONEY.

MR. ROOT:—In commencing to give in my report I will begin with the fall of 1884, when I went into winter quarters with 45 colonies packed in sawdust on their summer stands. I lost five colonies in wintering, on account of the severe winter. Over one-half came through weak. They increased from 40 to 67 by natural swarming. They gathered 1850 lbs. of white clover and linden honey, which I sold on an average of 15 cts. per lb. I packed my bees the same as the fall of 1884; lost two in wintering, which left me 65 to commence the season. I sold two swarms for $17.00, used three for queen-rearing. This left 60, which I ran for comb honey, giving me 2100 lbs.—an average of 35 lbs. to the colony. I kept 100 lbs. for home use; for the rest I received 14 cts. per lb. They increased by natural swarming to 98 colonies.

Basswood was an entire failure. The drought destroyed the white clover the first week in July. A field of alsike clover helped me in securing the quantity as well as the superior quality. After using 2000 of the 4¼×4¼×1⅞ sections with separators, and 4000 of the 4¼×4¼×1⅝ without separators in the last two seasons, I am so well pleased with the 1⅝ section I shall use them in the future.

By working hard I have made a home market for all my honey. The secret is, I think, to be found in putting it up in the most neat and attractive shape possible. This report is from an A B C scholar who commenced four years ago, with bees in box hives, which I transferred to the Langstroth hives.

M. G. CHASE, 15—65—98.

Lafayette, O., Oct. 5, 1886.

Our friend Mr. Chase has furnished us, for two or three seasons back, the nicest section honey it has been our lot to handle. In every instance, wherever his honey has come in competition with other honey, his has commanded a higher price. We sell his honey at 18 cts. per lb. on the market-wagon, while our other comb honey commands but 12 and 15 cts. Why is this difference? Because the Chase honey-comb is always pearly white, and the sections are never soiled with propolis or dirt. He packs his section honey in the 24-lb. single-tier shipping-case, and these in a light spring wagon which he takes wherever he can get the best price. Brother bee-keepers, are we all as careful to have our honey in as nice marketable shape as we can put it? In securing this honey he practices contraction, and uses the Heddon crate.

A GOOD REPORT FROM A BEGINNER.

ALSO A FEW KIND WORDS.

As the honey season is over, I feel as though I should like to say a few words in regard to the season, and other subjects of interest. I began last spring with six colonies, three Italian, one hybrid, and two black. Two of the Italians had about a pint of bees in each. I built them up, and they gave me one swarm late, but no honey. The other four I have increased to twelve, and taken 230 lbs. of honey—75 lbs. extracted, the rest in 1-lb. section boxes. The best Italian colony gave me three natural swarms and two artificial ones, and have given me 100 lbs. of honey. The season began early here, but there was hardly any honey in fruit-blossoms, raspberry, or dwarf maple—just the reverse of last year, when every thing was full of honey. The first of the season the bees got just enough to carry from one day to another, until clover, which also yielded sparingly, but lasted longer than usual, with just enough linden and buckwheat to keep them breeding well until goldenrod and asters opened about the first of August. These have given me all the honey I have taken, except 20 lbs. of clover in July, and from 20 to 30 lbs. in each hive to winter on, in nice heavy combs; they weigh from 5 to 8 lbs. each, capped, most of them clear to the bottom-bar. The honey is so thick that I could hardly throw it out with the extractor, and it weighs plump 12 lbs. to the gallon. It doesn't seem as though they would have much disease on such food. I don't think they have much pollen. I have sold 160 lbs., almost all at 25 cts. There is another bee keeper about three miles from me who has about 50 colonies. He sold his honey last year, what little he had, at 25 cts.; and when I began selling at 25 he did not like it so very well. He said I should keep the price up to 30 cts. for comb, for he was selling extracted at 25. There are few places where honey sells as high as here; but the town is small, and the people don't eat much honey, so it is rather hard work to sell at that price. I know that it is a good price for honey. I suppose 20 cts. is about right for it here; but if I should drop to 20 cts. this friend of mine would be very much offended, and give me another lecture on underselling. He said he could sell all the honey he could raise, at that price, and mine too, but I don't think he could. Some will buy honey at any price, and there are a lot more who will not unless they can get it cheaper. I took about 40 lbs. to Plymouth, quite a large town twelve miles away. I sold it after a while, a little in a place, but the most of them said they could send off and get it and then sell it for less than I offered it to them. I have pint 1¼-lb. jars at 45 cts.; how do you suppose it would work for me to fill all the stores with them at 30 or 35 cts.? Could I make more in the long run by so doing? I want to sell a lot of honey, but I want to do right, and use everybody well. Of course, it would not do to sell for less in one town than another. I should like a little of your advice on this subject, if you would be so kind as to give it.

How the bees did work for four or five weeks! If they had done as well the first of the season, I might have had quite a little report; but five good swarms and 100 lbs. of honey from a colony is not very bad. I am well satisfied with my work this season, and I owe most of my success to what I have learned from GLEANINGS. How any one can find fault with the contents of GLEANINGS is more than I can conceive. Every word of it is interesting to me, and instructive. Your talks about gardening, carp, poultry, and every thing else, is, to my mind, good enough. I wish it came every week.

I am sorry you have foul brood, and hope you will soon get rid of it. The smoker you sent me last year, for quitting the use of tobacco, has done me good service this season. I have not tasted the weed since, and don't intend to again. I am very much obliged to you. I have thought, this summer, if the men of this town would use the money to buy honey with that they pay for tobacco, I could sell honey enough; but they think tobacco is more of a necessity.

C. E. WATTS.

Rumney, N. H., Sept. 29, 1886.

As a general rule we should get as good a price as our honey will bring, and I hardly think 25 cts. per pound is too much if our patrons are willing to pay that for every pound we can raise. On the contrary, if customers will *not* buy at this figure, then we must sell for less. Your neighbor and yourself, I think, can come to some amicable agreement as to the price per pound you can dispose of your whole crop of honey. In regard to the 1½-lb. jars, if they will sell so as to in time close out the whole lot at 45 cts., I do not think I should drop the price. Questions of this nature, each one must decide for himself to a greater or less extent; and while we should command as high a price as we can get, we should also remember the "Golden Rule."

CATNIP.

Its Value for Medicine as well as for Bees.

ALSO SOME GENERAL THOUGHTS IN REGARD TO THE MEDICAL PROPERTIES OF PLANTS.

THIS very common plant grows all over our country, yet very little is known about its real value, because it grows at almost every man's doorstep. Something far fetched and dear bought is considered to be very valuable, while we have as good, and perhaps better, all about us; and if the one at home were carefully studied, our introduction would lead us to say, "We wish a better acquaintance." The medical properties of this plant are anodyne, carminative, diaphoretic, anti-spasmodic, and nervine. The infusion given cold is a mild tonic; so also is the fluid extract. It has been used in febrile diseases as a diaphoretic, and to promote the action of other remedies; also to allay spasmodic action, and produce sleep; and right here its value has been tested thousands of times, when the fever has run high, and the poor sufferer has rolled from side to side, wild from feverish mania, the eyes glaring and bloodshot, pulse 130 per minute, temperature 104, respiration 30. Now, here is a case that any physician would regard with alarm, and well he might, for danger is near if this condition is allowed to remain, or can not be removed. With the danger-signals all up, give *four ounces* of a fresh infusion of *catnip*, warm as can be drank comfortably, every hour, for 6, 8, or 10 hours, and, lo! your signals are all down, or, at least, at half-mast. Every indication is *changed for good*. It has been given as a carminative and anti-spasmodic in the flatulent colic of little children. Many times I have seen the little sufferer soothed down to rest and a long sweet sleep, by the use of a few teaspoonfuls of catnip tea; a gentle moisture would spread over the whole system; the irritation or cold, as the case might be, would fly out of the windows (the relaxed pores), and the little one would be well.

It is of great value as a *uterine* tonic, and has proved very beneficial in amenorrhea and dysmenorrhea, and has been employed in nervous headache, hysteria, and nervous irritability. The proof can be furnished, if the proof of the action of any medicine can be furnished, that it has restored the menstrual secretion after other means have failed.

As a convenient domestic remedy it has no superior in recent colds, coughs, febrile and eruptive forms of diseases, which infants and young children are subject to. The leaves and flowers are the most valuable part of the plant, and the virtues thereof are set free by boiling water, except the essential oil, which can be procured only by distillation. It contains that variety of tannic acid which strikes a green color with the ferruginous salts that are set free by heat. Restlessness, arising from overwork, anxiety of mind, and many other nervous conditions, are soon improved by the use of this remedy. The fluid extract of catnip, ladies'-slipper, and skullcap, equal parts, forms a splendid remedy for chronic nervous headache.

But with all the other good qualities, it is a splendid honey-plant, supplying a large secretion of nectar for the busy bees every year, and sometimes the amount of honey gathered from it is astonishing. And while it is good for the bipeds and good for the bees it is also good for Tabby. A few years ago I had a very fine puss that began to be stupid, and dumped about for several days, refusing all food, even milk. One day she had a terrible fit, frothed at the mouth, jerked, and convulsed terribly for a few minutes, and then a faint moan escaped the poor creature, and my sympathy was stirred beyond further endurance. I got some catnip, made some tea, and gave it immediately; and as soon as it touched her mouth, the greatest pleasure was manifest, working her mouth and trying to get every drop. In a few moments she revived, and lay quiet and resting. After a little while she moaned again and I gave some more tea, when she took greedily all I gave her. She took several drinks of it during the day, with the greatest possible relish; and the day after, she began to take a little food, and recovered rapidly, without having any more convulsions. If my horse had been sick, and recovered as nicely and speedily as did my pet Tabby, I should have regarded the remedy used, whatever it was, as very wisely applied.

The physician who does not deal truthfully with suffering humanity, especially when he knows that death is but a step before them, is very unkind and cruel. Ignorance or dishonesty only can be attributed to such conduct. If ignorant, he is unfit for a professional position; if dishonest, he is just as unfit.

N. L. HIGBIE, M. D.

Elsie, Mich.

I presume, doctor, the above was called forth by my questioning whether catnip really possesses the medical value that it usually has credit for. No doubt you are right, and I thank you for the information you have given us in the matter; but please, doctor, excuse me, and I would also ask the rest of the brethren who belong to the medical profession to bear with me a little, if I ask for a little more light on the subject. Suppose I should drink a gallon of the strongest catnip tea that could be made, inside of 24 hours, would it do me any harm? I presume that all would agree that it would not. Now, is it not possible that the warm drink, many times, does the work, when the catnip has the credit? A good big dose of hot water, just as hot as you can possibly swallow it, will, many times, do wonders. When I am out in the rain, and get chilled, and I can feel the premonitions of a tremendous cold coming on, I have often rushed for the kitchen stove. If nothing else is handy, I get a good dipperful of hot water from the reservoir, then I get my feet in the oven, and drink and drink. Now, it may be that an infusion of catnip in this hot water would help it, but I can't feel quite sure of it, unless the matter has been carefully tested by earnest searchers after the truth. I did not think of questioning the truthfulness of our medical men, nor have I been so uncharitable as to suppose that any reliable physician would fail to do his honest duty whenever his services were called for, unless, indeed, it were one of the kind of doctors who sometimes get intoxicated; and if I were taken sick when none but the latter kind could be obtained, I think I should feel safer with the dipperful of hot water.—In regard to catnip as a honey-plant, we raised it on our grounds quite extensively; but the cultivated plants, for some reason or other, died and went to seed so soon after they had given a good crop of honey that I decided they were too short-lived to be allowed to occupy very much space where land is as expensive as our own.

WHERE IS OUR GOAL?

THE COMING BEE.

FOR the last few days I have been thinking over and over again of a wonderful sermon that I heard from the pulpit a short time ago. The preacher—a very earnest man—tried to impress as forcibly as possible this thought upon his audience: That all people, in order to grow, to unfold, to ripen into perfect characters, must have a model—one that they must reach up to, and that a perfect one—even Christ Jesus. Ah, how true this is! Just show me the man or woman who is content to let things slip along in the same old rut, year after year, and I will show you a person whose growth can not be seen. Why? Because such persons have no model. These people have no ambition—no goal. If they had a goal which they were aiming to reach, then, when they compared their progress side by side with this sample, they could see their gain, or loss and profit thereby.

I do not wonder that you or Ernest exclaimed, in Our Homes of Aug. 15, relative to the indolent shop-keepers, "Why can't they jump up and push something?" But, again, the pastor said we should be acquainted, or familiar, with our model or sample, that we might compare or measure ourselves and our work by it, and thus see when we have attained perfection, or how near we have come to it. It was this phrase that led me to see how well the sermon could be applied to our vocation—bee culture—as well as to our lives, and in this manner:

Have *we* a goal? If so, what is it? We talk and write of the coming bee—what is it? Who can describe it? If we do not know exactly what we want in our ideal bee, or if we are not familiar, either through writings or our thoughts and ideas respecting it, then how can we tell when we have procured a perfect bee? and would any two bee-keepers agree as to its worth?

Map out the bee we all want; discuss each peculiarity, each merit that it must possess, then let us compare each race or strain by this model and see just what is now lacking. Let bee-keepers work *together* for this end. "United we stand, divided we fall." Combine traits that we think will improve our existing races, and how long would it be before we should see a wonderful improvement?

And how is it with hives and fixtures? See the variety of hives, etc., in use to-day; their names are legion, and the evil seems to grow instead of diminishing. Is this the way in which we are to gain rapidly in apicultural science? No. As with bees, we must find what we need; what ends are to be accomplished, then all work for them. Have our energies concentrated; our ideas culled, and then just imagine the progression we should make, and see if all this could come to pass.

To be sure, we are progressing rapidly, even now; but each of us seems to be struggling on for some *unknown* or indefinite end. If I should ask such men as Messrs. Doolittle, Cook, Root, Hutchinson, Heddon, and a host of other leading men of the science, to just what height apiculture is tending, what means are being used to get there; and if they are familiar with the goal we are striving to reach, so that they could tell when it was gained, or compare our yearly progress by this perfect sample, what would be their answer? I certainly could not begin to answer the questions, but probably they could.

I have always been eager to adopt new ideas or inventions, and have prided myself on my progression; yet I realize that I am at a loss to know just what I really want. Of course, I can see, as can all bee-keepers, wherein gain could have been made in certain points; but one or two, or even a *score* of men and women, are not to accomplish, though they may work hard, what will require the combined efforts of the whole bee-keeping fraternity.

It has always seemed to me, that if Heddon, Langstroth, Quinby, and Root, or all of our prominent inventors, could have come together and *worked* together on things needed, that more could have been accomplished than is now on record; although, mark you, I would not in the least underrate the immense knowledge they have already given us. C. H. SMITH.

Pittsfield, Mass.

Friend S., I agree with you in regard to having a goal and a model; and I think, also, that it would be a very excellent idea to map out, as far as we can, just what we do want. I should like bees that gather honey when ordinary stocks such as we now have get nothing. But perhaps when we get this we may find that we have got, along with it, a great propensity to rob; so the matter is going to be somewhat complicated before we get through. The thought expressed in your last paragraph is what we propose to accomplish by bee-keepers' conventions.

LETTER FROM INDIAN TERRITORY.

A SWARM OF BEES FOUND FIVE MILES FROM ANY TIMBER, ON THE OPEN PRAIRIE.

WHILE driving in an adjoining country, some 22 miles from home, I captured a runaway swarm on a large prairie, five miles from the nearest timber in the direction from which it came. I chased them nearly a mile, and succeeded in getting them into a flour-sack, and brought them home the same day and hived them in a new hive, as described by Dr. Tinker, and illustrated in GLEANINGS for Mar. 15. They have done well, and are now storing honey rapidly from Spanish needle.

A FAVORABLE REPORT FROM HIVES USED HEDDON FASHION.

In regard to the hive recommended by Dr. Tinker, I will say that I made half a dozen, and hived prime swarms in them, using two sectional parts for brooding and alternating, placing sections in the case on top of same, with no kind of honey-board between. In each case, where I used the 4¼ x 4¼ sections they were nicely filled and sealed. Upon one where I used sections 4¼ x 8½, the queen went above. For comb honey I very much like said hive; but from the description, I am of the opinion that the new Heddon hive is superior.

LONGEVITY OF IMPORTED QUEENS.

My imported queen, purchased of you late in the season of 1883, died the following winter, without leaving me a single one of her daughters. I wonder how many of your A B C class have done the same or nearly the same thing. Of course, if I had succeeded in getting a large number of extra good queens, noted for usefulness, you would have had my report sooner. I resolved to tell you this, even if it is seemingly adverse; but such adversity only makes me the more careful, and appreciate success more when it does come.

MY REPORT.

From 8 colonies I have 400 lbs. of extracted honey, 100 lbs. comb. My best colony has given me 10 gallons, and I shall probably get 1½ gallons more. The queen was purchased of G. A. Beech, Quitman, Mo., and is extra prolific.

4—W. H. LAWS, 12–25.

Pocola, Ind. Ter., Sept. 22, 1886.

Thanks, friend L., for the valuable fact you give in regard to the distance a swarm of bees may travel. — I am glad to hear that you succeeded so well with the hive made as mentioned.—Where we sell imported queens late in the fall, we presume they will, of course, live long enough to be of some use next season. Queens, however, like other farm stock, are liable to die at any time, and without any apparent reason. In consideration, however, that you secured no young queens from her at all, we will furnish you another at half price, any time when you feel inclined to order. I believe that imported queens have not, as a rule, proved to be shorter-lived than other queens; and in some cases they have done good service for two and even three seasons.

FOUL BROOD.

FRIEND DOOLITTLE TALKS TO US ABOUT IT.

IT seems to be a way we bee-keepers have, of discussing a subject "to death" when once we begin on it, and for this reason I had thought I would not say a word regarding foul brood; but as some errors have crept into this foul-brood discussion, as I view them, I can not well hold my peace, for I deem it wrong to allow an error to pass unnoticed. First, I wish to call to notice that the phenol cure was brought forward to cure *Bacillus alvei*, which, in my opinion, is not our foul brood at all, if we take Mr. Cheshire's description of it, found on pages 644 and 740 of *A. B. J.* for a truthful outline of said disease. He then says the disease is not carried in the honey, while our honored M. Quinby said that it is, and hundreds of bee-keepers can testify to the truth of Quinby's words. He further says, "There is not a single old idea about this disease (foul brood) which is not incorrect, except that it is contagious." Again, he tells us it is a disease of the mature bees, and that even the eggs of the queen contain *bacilli*, he having counted "no less than nine" in an egg. All this proves to my mind that *Bacillus alvei* is not our foul brood, even although Mr. Cheshire says it is, and that phenol is a remedy for only the first, and not the last. I always prize scientific researches highly; yet, to be valuable to me such research must not run squarely against facts known to exist from practical experience. Hence I think there is an error somewhere, so I am, like friend Root, skeptical regarding the phenol cure.

Again, Mr. Hoyle is putting forth the idea that the disease is caused by inferior honey, and that it can be cured by feeding "nice honey from flowers or sugar syrup," all of which convinces me that he never had the genuine foul brood as it existed from 1855 to 1875 here in New York.

Malignant foul brood is always aggressive, never retrograding; and although there are times during a heavy honey-flow when the bees make a desperate effort to clean it all out, yet, as soon as that flow ceases, even an inexperienced eye can tell that the disease is surely and steadily advancing, so that in less than one year from the time many cells of foul brood are seen, the colony must succumb to the inevitable; for by that time the combs have become literally a putrid mass. All other diseases of the brood will get well, as Mr. Hoyle speaks of, and would succumb to the mild treatment of coffee, as Mr. Vance tells us about; but the genuine is not gotten rid of so easily. I have not seen a genuine case of foul brood in ten years, and I very much doubt if friend Root has had real foul brood in his apiary. At any rate, I think he has been a little hasty in destroying those affected colonies by fire; for if it were not foul brood, bees by the colony make rather expensive fuel. Just what I should do in a like case would be, when I found a colony which gave appearance of foul brood, I would carefully note the number of diseased cells it contained, and the strength of colony, after which I would close the hive and let it alone for two months, when, just at night, when there was no danger of robbing, I would again examine it and compare notes. If not materially worse, I would again wait another two months, knowing, of course, that there was no danger of its getting so weak that it would be robbed out. If at the end of four months it should be no worse, or had got better, I would call it all right; for by this time the genuine foul brood would have so spread that at least half the brood would be dead, especially in the summer months. If it proved aggressive, I would take the course friend Root has, providing only a few had the disease. If many had it I would treat them on the Jones plan, only I would not starve them as he does; for from my experience with it in 1872 and '73 I can see no need of this starving process; for if swarms from a foul-broody colony, placed in an empty hive, do not have any of the disease, driven colonies will not. Colonies so hived in 1872 did not again have the disease, while driven colonies were left in an empty hive till larvæ began to hatch, when combs and frames of brood were given them, and no signs of the disease appeared afterward. By this plan I secured six frames, partly filled with nice worker-combs, which were afterward completed with nuclei, which I should have lost had I used the plan as Mr. Jones uses it. If not wanted as above, these combs are splendid to use in sections, *a la* Walter House, so in this way those six days of fasting are made to be of value to the unlucky apiarist. Having once "been through the mill" with the genuine, I know whereof I speak.

Borodino, N. Y. G. M. DOOLITTLE.

Since our last report I (Ernest) have been through the apiary personally; and now, having examined half the colonies, I have found five of the very *worst* forms of foul brood I have yet seen. I was scarcely able to find a healthy cell, in said cases, but, on the contrary, the brood was fairly rotten with the disease. The cells were sunken, and in many cases the characteristic small hole in the cappings was seen. The young diseased larvæ have that brown, maturated, sticky appearance. If a toothpick be dipped into such a cell, the matter will adhere to the point when withdrawn, forming a fine thread. The older larvæ shrivel into a brown color. The disease certainly has a hold of us, is contagious, and is spreading. So far, we have had fifty cases of foul brood. I have found all stages of it in the apiary, from one hive with only an occasional diseased cell, to one having the combs fairly rotten. No, friend Doolittle, were you here to take a look into our colonies, you would be no longer in doubt. We should like "awful well" if we could *believe* that we didn't have foul brood, and I do think I should throw up my hat and yell if such were the case. Now, perhaps you will ask, "How is it that we reported no foul brood in the last issue, and have it so badly now?" For some reason our apiarist has not caught on to the knack of finding it; and as he stated that he had found no foul brood, it was so reported in GLEANINGS. Feeling a little doubtful that such *could* be the case, I went at it myself and arrived at the results as above recorded. See reply to the following article. ERNEST.

FOUL BROOD.

ITS NATURE ILLUSTRATED BY EXPERIMENTS.

IN writing this article I believe I am prompted by nothing but a real sympathy for you in your misfortune—foul brood in your apiary. On page 734, in one of your foot-notes you make this unqualified assertion: "In spite of all we *can do*, it continues to exist in our apiary." Now, it does seem to me that, if this assertion is to be taken with all the force that the auxiliary verb "can" gives it, that it would be inconsistent to contend any longer with the disease; but as I think it continues to exist in spite of all you *have done*, rather than in spite of all you *can do*, I shall offer you a bit of experience in connection with some experiments with foul brood in my apiary. But let me first remark, that, as foul brood is caused by a microscopic vegetable growth, I would proceed upon exactly the same principle to get rid of it that I would to get rid of Canada thistles or any other vegetable growth; namely, destroy every living plant and every existing germ. Then, and not till then, have you conquered. But, to proceed:

A few years since, I had in my apiary one colony affected with foul brood. Just what I did was this: I exchanged the cover for a new one. I caged about a pound of the affected bees, took one comb containing honey and pollen, without brood or bees. I then smoked the colony at short intervals for several hours, until every bee was in. I then smoked them with sulphur until every bee was dead. I then carried the hive some rods from the apiary, where I dug a pit, in the bottom of which I burned the hive with all its contents. The affected cover of comb card and caged bees I placed beyond the possible reach of bees. I then formed nucleus colonies, and waited twenty days, that I might have plenty of brood in my nuclei.

Now I will here remark, that up to this time no trace of the disease was discoverable in the apiary. Now for the experiment: In nucleus number one I dropped down, between two of the frames, a small section of the affected cover, and burned the remainder of it. In number two, upon the top of the frames I placed a small piece of enameled cloth, upon which I emptied my cage of bees, which by this time were not only dead, but so decomposed that they had ceased to throw off any unpleasant odor. In number three I placed a small quantity of the affected comb, from which I had carefully washed all the honey. To number four I fed a quantity of sugar syrup, made with the water that I had used in cleansing the above-mentioned piece of comb. In number five I placed a sheet of foundation suspended in the aforesaid affected frame. After carefully scalding, I scraped it in such a manner as, if it were possible, to destroy every germ of foul brood. The result was, in a short while every colony thus experimentally treated had foul brood. This drove me to the conclusion that the only true remedy is to burn the affected hive with all its contents, and every thing else, indeed, however valuable, with which any foul brood had come in contact.

Just here I will remark, that I plowed the apiary ground; burned the saw, hatchet, smoker, and other things that had been used in the above experiments, together with the five affected colonies in the bottom of the above-mentioned pit. I then filled the pit with dirt, burying the ashes some two feet beneath the surface. I had one case after this, to which I gave the double rite of cremation and burial, and thus ended my experience with foul brood.

Now, Mr. Editor, it seems to me to be the plainest of propositions, that if foul brood depends upon a vegetable product for its origin—and I suppose that no well-read bee-man would deny this proposition—that the method indicated in the above experiments is the only one left us with which to conquer this terrible disease.

As I am conducting a poultry-yard in connection with my apiary, I will give you an item from it. Last July I set eleven hens on 143 eggs. They did not hatch very well, as only 101 chicks were brought off. I caged ten of the hens and gave the 101 chicks to one hen. Our three-year-old boy stepped on and killed one; two I killed, burned, and buried, because they showed symptoms of gapes; the other died from an unknown cause. The remaining 97, at this writing, I see all in perfect health upon the lawn; and I assure you, to me this is one of the most pleasurable sights I ever beheld. Now, as this, at least in this section of the country, is unusual success, and depends upon a great deal of detail in the matter of handling, feeding, pasturing, and cooping, I will refrain from giving it unless it should be wanted.

The honey season continues to be a very poor one. Words would certainly fail me were I to attempt to tell you of our appreciation of GLEANINGS. "Sweet" and I have been seriously thinking of sending for an additional GLEANINGS, so that neither will be compelled to read stale news.

Hearn, Ark., Sept. 29, 1886. P. H. MARBURY, JR.

I grant, friend M., that complete extermination of hives, bees, frames—in fact, every thing connected with them, is a sure cure; but if a milder treatment will accomplish just as good results, why not use it? We have yet to find a single colony of the fifty, treated in the manner we have before described, that was not cured. We destroy the brood-combs and honey only. We put the bees into a clean hive on frames of fdn., and close them up for 24 hours, after which time we feed them. The hives and appurtenances are thoroughly scalded out with steam. I think it is true, that live bees will not give the disease, where, if they had been sulphured to death with the diseased honey still in their sacks, they would spread it, for this reason: The live bees will consume the honey in their sacks, containing the germs of foul brood, when the same honey in the sacks of dead bees will remain unchanged and consequently be contagious.

Once more: Your nuclei were together by themselves, and, in consequence, the bees of said nuclei probably did and must have intermingled to a greater or less extent. Then if one of the nuclei had foul brood, all would have it. It is this very same thing which we think is spreading foul brood at the Home of the Honey-Bees; so your experiments, although carefully conducted, it seems to me do not prove any thing. As a moral, then, I think it behooves us to have our colonies located pretty well apart.

ERNEST.

LEGISLATION NECESSARY.

DR. C. C. MILLER GIVES US SOME THOUGHTS ON OVERSTOCKING.

IN my last article I tried to show that the interests of all would be best subserved by having bee-keeping mainly in the hands of those who make of it a principal if not an exclusive business, and took the ground that legislation is needed to encourage the movement in that direction. At first thought, the necessity for this may not appear. Some may think the matter will regulate itself, and that, as a matter of honor, no one will encroach upon ground already occupied. Unfortunately, cases enough have already occurred to disprove this. I recall the case of G. M. Doolittle, reported by him incidentally as bearing upon some other point, with no thought, apparently, of finding fault with the existing state of things. I do not remember exactly, but I think that, by means of others in his field going into the business, his average yield was reduced about one-half. Mr. Doolittle's plan of dealing with these men who lessen his profits is to give them advice and assistance. Under the circumstances this may be the best way, for they have just as good *legal* right on the ground as he; but unless Mr. Doolittle is made of different material from myself, he would be glad to have them out of the way, and would be willing to pay a fair price for their permanent withdrawal. Suppose the same state of things existed in farming, so that a man with fifty head of cattle finds the ground for their grazing beyond control, and subject to the whim of every interloper. How long would he continue the business? Just so long as the present uncertainty exists it will be a serious hindrance. Even supposing that no investment whatever were needed in the business, the fact remains that any year a man may be compelled to seek a new field, possibly at a great distance, and at some expense in the search, and the expense of removal is a serious matter, to say nothing of the breaking-up of old ties. But as the business becomes more settled in its character there will be few without more or less of permanent investment that would be a dead loss upon removal. Buildings are put up, specially adapted to the business. Winter repositories are built in some localities, which are of little or no value for any other purpose. The matter of artificial pasturage would receive a strong impetus if a bee-keeper could feel sure of himself reaping the harvest of his own sowing. I am not over-sanguine as to artificial pasturage; still it is among the possibilities, that, not so very far in the future, there may be bee-farms of 10, 50, or even 100 acres, principally or wholly devoted to honey plants, making a continuous harvest from May to November. But what encouragement have I to invest in such an enterprise, with the probability that, as soon as fairly under way, the proceeds must be divided with others who have borne no part in the expense?

What kind of legislation is needed? I don't know. I have studied very little upon this part of the problem; but whenever bee-keepers are agreed that legislation is needed, some one will suggest a good plan. One way would be to dispose of territory in the same way that the soil was disposed of by government, giving one a deed of so many square miles, or of a township. But it is premature to discuss the kind of legislation needed, unless bee-keepers first agree that any legislation is needed.

A WHEELBARROW.

After greatly delighting my wife with a carpet-sweeper, and nearly as much with a lawn-mower from A. I. Root, I meditated sending to him for a wheelbarrow, as my old one was pretty well used up. It occurred to me, however, that I could so modify a common railroad wheelbarrow, for which I had but very little use, as to answer the purpose. It was very strong, but an awkward, heavy affair. I knocked off the boards that formed the body, or box, and sawed off the upper part of the standards nearest the handles, leaving a light and very strong barrow. Taking off the boards took away the stiffness, so I had two iron rods put on as braces. The load coming close to the wheel makes it much easier handled; and although costing only two or three dollars, I would not exchange it for any $5.00 wheelbarrow I ever saw. Railroad wheelbarrows may be found at almost any hardware store; and although made in different ways, I think any of them can be easily modified to suit a bee-keeper.

Marengo, Ill., Sept., 1886. C. C. MILLER.

Friend M., I have many times thought of what you say; and, in fact, when planting our basswood orchard it occurred to me quite often, that, should it ever prove a success, somebody would be almost certain to begin bee-keeping in the vicinity, and thus take advantage of our crop of honey which took us fifteen or twenty years to raise. In fact, a good many asked me what I should do if such a thing should happen. I told them this: That I should expect to keep enough bees to overstock the locality. In fact, I proposed to keep such a number of stocks at all times that it would be a very poor investment for a bee-keeper to locate very near me, and some have already found it so by trying. Another thing: Is not the competition in any kind of business something in the same line? When one gets a big trade started in the clothing business, for instance, somebody else takes a big part of it by running opposition. If the second man who comes in is a keen, go-ahead business man, clothier No. 1 frequently buys him out, with a written agreement not to go into business again for a term of years. Why should not a bee-man do the same thing? In defense of your position, however, I have very often thought I should like to purchase the privilege of keeping all the bees within, say, a radius of three miles in every direction. I should then have control of foul brood in a way that I have not got it just now.—Thanks for your suggestions in regard to remodeling the common cheap wheelbarrow. I am inclined to think, however, that when you come to see our $4.00 wheelbarrow you will relent a little—see if you don't, friend M.

THE LOW PRICE OF HONEY.

WHAT ARE WE TO DO TO STIMULATE THE TRADE?

I NOTICE in the bee-journals that honey quotations all say they have more than they can sell, and tell us not to ship just now, as it is slow sale. So it continues all the year, and from year to year. It won't bear shipping, the sales are too slow and too low. I shipped four barrels of extracted honey to Galveston a year ago. The merchant to whom I shipped it says that he has not sold an ounce of it yet. I see by the reports that the honey crop is large in the North this season, more people going into the business every year, doubling yearly or more. The fact is, people don't eat honey. They are very fond of it if it is *given* to them; but if they have to buy it, it gives them the toothache—makes them sick; in short, they don't like it. Well, we are in the business very extensively, and the question is, how to get out of it or get our money back. I have 400 colonies of bees in the Langstroth hive, and have extracted 600 gallons—a very light crop. I have to keep from three to four men nearly all the time to help me. I pay them 75 cents per day, they boarding themselves. That is very low pay for work among bees, yet I can't sell honey enough to pay the hands, not counting *my* time as any thing. There is no "let up" in the business. Bees don't care for Sunday. I can handle any bee that I ever saw, with a smoker, without gloves or veil, with my sleeves rolled up, yet it doesn't *pay*. The more honey I have, the less it pays. If I could get along without barrels to put it in, it would pay a little better. We shall have to put it in some other shape to sell. Can't it be made into candy? Can it be made so as not to run together like stick candy?

I have thought, that if we could get the newspapers to talk honey it would do much in aiding us in selling honey; there is not one man in ten thousand who ever reads a bee-journal, yet all read the common papers. I notice some bee-brother says that no bad reports of bees and honey are ever published. This will satisfy him that I am badly in the ditch, and I suppose that I am not alone, by many hundreds. You will have to put me low down in Blasted Hopes if some brother can't help me out in disposing of my honey. We all want help.

J. W. PARK.

Columbia, Brazoria Co., Texas, Aug. 17, 1886.

Friend P., I am inclined to think your honey is not first quality; that is, it probably does not command first price in the market. When we get a real nice article of either clover or linden honey, we seldom have it remain very long on our hands; but a lot that is a little off in color, or off in taste, goes off at a very low price. I am afraid, also, the merchant to whom you shipped it does not make much of an effort to sell it in the way of getting it before the people in attractive shapes. I do not believe much can be done in the way of making honey into confectionery. The honey-jumbles I have mentioned on former pages seem to be the best outlet for honey to be used in the way of refreshment. We are just finishing the ten-barrel lot we mentioned a few months ago, and the whole ten barrels have been sold in our own town. They will keep months, or even years, and are just as nice a cake when a year old as when first made. People don't seem to tire of them. The flavor of honey is very perceptible in these jumbles; but even a poor quality of honey seems to go off well when worked up this way; that is, I mean such honey as goldenrod, Spanish needle, or even buckwheat, when it is in the form of a cake, is not objectionable. Friend P., if you will send a sample of your honey to friend Muth, of Cincinnati, I think he can take it off your hands at a pretty fair price; that is, if the quality is fair. Your suggestion is a good one, about getting the newspapers to talk about honey. They are getting to, to some extent, but not very much as yet. Now, then, brethren and neighbors, can't some of us help friend Park out of his dilemma? It seems to be too bad to hear him say, that the more honey he gets, the less the business pays. That is certainly a queer turn of affairs in the bee-business.

BOTTOMLESS HIVES.

HOW THEY ARE USED BY M. BROERS.

AS I wrote you some time ago that I was experimenting on a hive without a bottom, and promised you I would report later, I will now give you the result of my experiments, and the advantages to be derived from the use of a hive without a bottom. In the first place (and I consider it of the greatest importance), there is no possibility of losing the queen when hiving a swarm by her getting under the bottom-board; and in the next place, I can put in a swarm in about half the time it takes to put them in a hive any other way, as the hive can be left open all around, so they can get in from all sides. I have not put in a single swarm from the top of the hive this season, and have not had one swarm to leave me, which, I think, is often caused by being compelled to go into the hive after the swarm is all in, to straighten things up.

Another advantage is, that you can give a new swarm all the air they need, and you know they need a great deal. Where the yard is located on a slope, as it should be, every shower we have washes out the bottom of the hive, carrying off all filth which may have accumulated underneath, and which, at the same time, makes it *very* unhealthy for the larvæ of the bee-moth, which, by the way, can find no lodging-place inside the hive.

Another item is the saving of lumber; and I think, taking all things into consideration, I shall never use another hive in my yard, with a bottom-board.

HONEY AS A CURE FOR ERYSIPELAS.

A neighbor lady tells me that she completely cured a case of this disease with honey, after the doctors had given her child up and said it could not possibly get well. The way she applied the honey was by saturating a sheet with honey and wrapping the patient in it; but it was a very bad case, and the disease had spread all over the child's body. I suppose all that would be necessary would be to cover with a cloth the parts affected, saturating it with honey. The above may prove of value to some of your readers, as erysipelas is sometimes very hard to control. M. BROERS.

Gonzales, Tex., Sept. 20, 1886.

Friend B., this subject is not new, and a good many have used hives without bottoms to a considerable extent, myself among the number; but when your bees unexpectedly get on to a robbing raid you may wish pretty vehemently you had got tight bottoms to all of your hives, and entrances that could be closed safe and tight. Perhaps in your warm climate there is not as much need of bottom-boards in general as there is here.

SOME EXPERIENCE WITH THE BLACK BEE.

FROM AN A B C SCHOLAR.

You say in GLEANINGS you are not bothered much with moths or worms. Well, I have had a great deal of trouble, and can hardly keep them from destroying my strongest colonies. I have one especially that has been losing the young bees for about two months past. I went a month ago to see friends Nebel & Son, of High Hill, Mo. I asked them why I was losing so many young bees, and they could not account for it. I guess from the questions I asked them about bees they thought I was too good an A B C scholar to let moth get in my hives; so after coming back home, and still continuing to study the A B C book, I at last found out by it that it was moths. Well, I went to that hive yesterday and just tore the combs apart. I found some moths, to be sure. I tore out combs with moth-worms in them to the amount of a gallon. I am having trouble this morning with robbers. I have four out of the six now that I can go through and take the moth-worms out.

The season started in well for honey, but it was very dry the latter part of summer, so that now my bees are not making any more honey than they are consuming, so I have to feed three of them for winter. Since starting in with bees I have become enthusiastic in bee culture; and to say I like the A B C book and GLEANINGS is putting it very mildly indeed. There are some writers I have learned to especially like already, such as the writers of Our Own Apiary and Banner Apiary, and Doolittle and others. I expect to build hives this winter, and think I shall adopt the chaff hive for lower story, and Simplicity above. There are a great many people here who have bees, but they get very little honey from them, because they keep them the old way; but I think a great many of them will soon adopt the modern plan. I am trying to work up an interest, and to get them to take GLEANINGS and get them an A B C book. I think they will come around after awhile. You can consider me your agent here at this place. The future will have to tell how good an agent I am. J. W. ROUSE.

Santa Fe, Monroe Co., Mo., Sept. 3, 1886.

Accept our thanks, friend Rouse, for your kind words, and also for your kindly interest in our behalf. In regard to moths, you have doubtless learned ere this, from the reading of your A B C book, that Italians are a sure preventive of their ravages. We have only one colony in our apiary where there are moth, and this is a colony of black bees which we recently purchased of a neighbor. What shall we do about it? We will give them an Italian queen and a frame of young Italians.

CALIFORNIA.

NOT "A BEE-KEEPER'S PARADISE."

After being in Southern California for three months, and without seeing GLEANINGS, I feel as though I had lost my best friend, and am losing all track of what our eastern bee-keeping friends are doing. Southern California is supposed to be the "bee-keeper's paradise;" but it is far from it in many respects. I have not yet visited any of the large bee-ranches; but from observation, and conversation with experienced bee-keepers, I have concluded that a good location in the East is preferable to this country.

First, though they can probably get twice as large a yield as we can east, yet I think that, with less work, I can make a colony pay better east than here; for here they consider 3 to 3½ cts per lb. a fair price for good extracted honey, while really for the same grade of honey we can usually treble that price.

Second, while California white sage has had a good deal said as to its excellent quality, I have not yet tasted of California honey that beat our pure white clover, extracted, either in taste or beauty. Again, the bee-keepers of this county have had a lawsuit with the fruit-men (especially the grape-men), in which the latter claimed and proved that the bees injured their fruit, and came out victorious. It is said here that the bee punctures the skin of the fruit, without any aid from other insects. If I am not mistaken, most of our leading authorities say the skin is first punctured by other insects.

What do the latest experiments prove? Do they, or do they not puncture the fruit?

The fruit-crop in this part of California is very light this year. Peaches and nectarines were not more than a fourth of a crop, while the orange crop is light. Apricots and grapes are about the only good crops. The people here now are very busy picking their raisin grapes. A. M. PATTEN.

San Bernardino, Cal., Sept. 28, 1886.

Friend P., there is still a good deal of controversy in regard to bees puncturing grapes;

and although they have left our large crop of Concords entirely unharmed, I am satisfied that they have annoyed, and perhaps damaged grapes belonging to our neighbors, when the grapes were left on the vines until after frost, or until they got very ripe. I think the fruit-grower who is also a beekeeper can so manage the gathering of his grapes as to be but little annoyed by the bees; but where people are not ready to gather their fruit when it is dead ripe, and large apiaries are in their vicinity, there is quite a chance of trouble between neighbors.

FRUIT-BLOOM HONEY.

BEE-TENTS, PERFORATED ZINC, ETC.

I SEND you by this mail a sample of fruit-bloom honey. The fruit-bloom honey we get here is good. This year it seems to be better than usual. It is the thickest honey I have ever handled, and it will granulate during the hottest weather. The honey-crop in this section is light, and it may be lighter still before the bees are prepared for winter. This has been a remarkable season. We had much rainy and cloudy weather, but the bees got enough to keep themselves, with some to spare, ever since the first of May. Fall flowers are abundant, and of vigorous growth. My bees, like a great many others reported, seemed to have a swarming fit; but although they nearly all swarmed in less than 21 days, I had no more colonies than before.

USING BEE-TENTS.

We all know how it goes to open hives during a scarcity of nectar. All may go very well if we have nothing more to do than to peep into a colony now and then; but if we have extracting to do, colonies to unite, old queens to be found, and new ones introduced in full colonies, it is altogether another thing. I often use a tent; but when I take the tent away to commence on the next colony, the robbers go for the entrance in a body. Well, I have tried several plans. Last season I struck on a plan that I can depend on. I took an Alley drone and queen trap, and put wire cloth in place of the zinc at the entrance, being sure that it was secure against the combined strength of the robbers. I removed the zinc, or tin slide, from the top. I have used this with complete success during the past two seasons. I find that the robber-bees that get into the hive before the hive is closed come out at the wire-cloth funnels unless the bees kill them; also the bees of the hive can come out if they want to. Of course, this trap is to be removed as soon as the bees are ready to defend themselves.

PERFORATED ZINC.

Last April I got of you two full sheets of your perforated zinc; also a tin-bound perforated zinc honey-board (I would take this tin binding off if I knew the honey-board would be large enough afterward). I cut the two sheets of zinc into honey-boards, and make also 12 Heddon and one Tinker honey-boards to fit the Simplicity hive. They are beveled the same as a Simplicity hive; and when in place they show on the outside and have a bee-space above and below, the same as the Heddon. I like the Tinker, or strips of zinc between slats, best. I should not like to do without these honey-boards, and have to pry and pull to get the frame apart, as I did before this season. I have a simple arrangement to get the honey-board loose from the lower frames very quickly.

Some time ago (July 15th or Aug. 1st) Mr. Muth mentioned something in GLEANINGS about some of his honey having an appearance as though soot were mixed with it. Now, I must always take my surplus honey away from the bees before July 10 or they will mix with it more or less juice from decaying cherries, a small quantity of which will give the honey this sooty appearance when extracted and placed in glass receptacles. Probably this is what is the matter with Muth's honey. I evaporate all honey not ripe by the 10th of July, by running over an arrangement at a temperature of over 100°. 5—W. E. PETERMAN.

Trappe, Montg. Co., Pa., Aug. 19, 1886.

It is true, robbers will sometimes pounce down upon the entrance immediately after the tent is removed. To prevent this would-be pilfering we contract the entrance for the time being so that one or two bees can easily stand guard. Indeed, it is well to keep the entrances of all weak colonies thus contracted during a dearth of honey.—The slatted honey-boards, we should judge from reports received, have doubtless come to stay; in fact, Dr. C. C. Miller, who has just been with us, says he would not now do without them. With the perforated zinc between the slats they will be doubly valuable.—I hardly think the smoky appearance of Mr. Muth's melilot honey was caused from the juice of decaying cherries, and I should be a little skeptical about its coloring your honey in the way you describe.

SOMETHING IN REGARD TO DRONE-TRAPS.

ENTERPRISING CHICKS, AND HOW EXPERT THEY BECOME IN CATCHING DRONES.

THE best drone-trap ever invented is not equal to a dozen half-grown chickens. We feed the chickens in the apiary, and there are about a dozen that never leave it. They eat drones from the time they commence coming out in the morning until they stop in the evening, and some hot days they eat so many drones we don't have them to feed. They became so expert they could catch them on the wing every time, and sometimes two chickens would be jumping up after the same bee. When drones got scarce they began to try a few workers, but didn't relish them, for the workers would sting, even after they were picked to pieces and swallowed. I saw one chicken swallow a dozen drones in five minutes, and then look for more. They also ate a few clipped queens, and seemed to relish them as well as they did drones. They kept the apiary stripped of drones, except in two hives, which were so high from the ground they could not reach them. The chickens were White Leghorns and Plymouth Rocks.

Bees did poorly until morning-glories commenced blooming. The honey-crop is poor in quantity as well as in quality in this county.

W. W. SOMERFORD.

Navasota, Grimes Co., Texas, Sept. 27, 1886.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Sept. 15.

CHAPTER XXV.

By this shall all men know that ye are my disciples, if ye have love one to another.—JOHN 13:35.

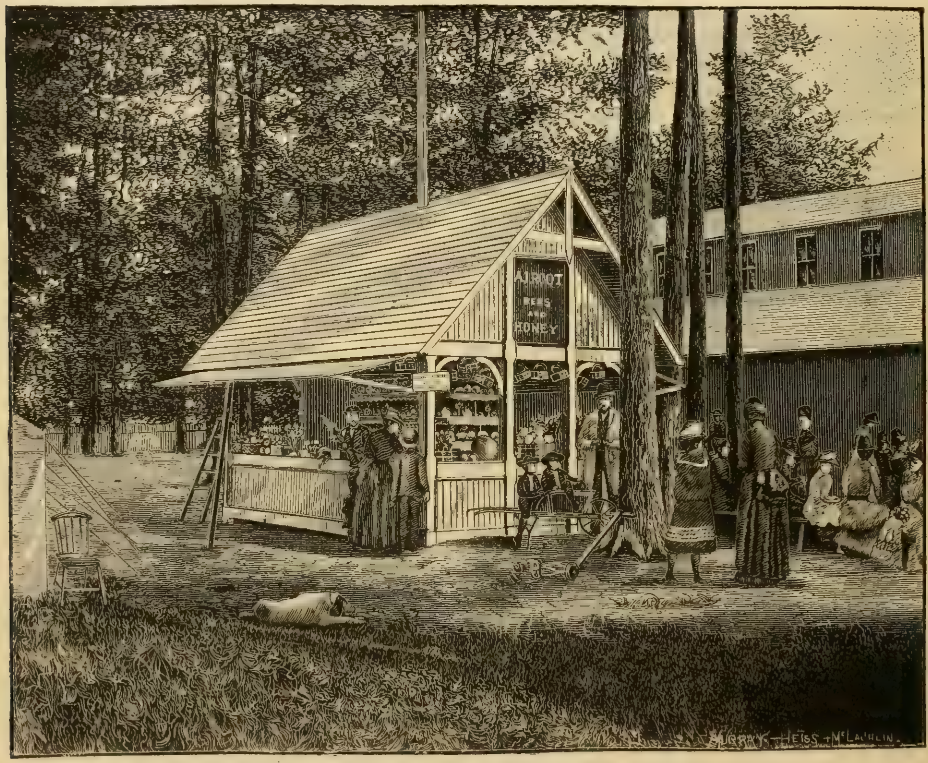
In this chapter I am going to say something about attending fairs—county fairs and State fairs, and I am going to take the position, also, that we ought to go. The friends who have followed me thus far surely know, without my telling them, that I do not approve of horse-racing, games of chance, or gambling of any kind; or betting; neither do I approve of throwing balls at dolls, and getting a cigar every time you throw straight. I am sorry to see these institutions still kept on many of our fair-grounds. I am very glad to note, however, that in many of our State and county fairs—in fact, I think I may say in the most of them—very great improvements are being made in the way of encouraging better morals. The State or county fair now that allows intoxicating beverages to be sold on its grounds is behind the times, and I think a progressive people will very soon give them to understand that such management will not long be countenanced, and that they can not long prosper.

Well, what *shall* we do at our county fairs, you may ask? My reply is, that we should make them the means of receiving and giving knowledge. Let every tradesman and every producer of any crop of any kind go and exhibit his wares; let him stand by them and explain to people all about them. Let us all endeavor to get acquainted with each other, and in this way I think we fulfill the spirit of the little text at the head of this chapter, inasmuch as we can not love people very much without knowing them, at least to some extent. One of the *grand* things to be done in this world is to get acquainted. Staying at home and attending to your own business is all right, if not carried too far. No doubt there are people in every neighborhood who go visiting *too* much; but I think it is equally true that there are almost as many who do not go visiting enough; that is, people who do not meet their fellow-men so as to exchange ideas, and keep posted in regard to the events of the day.

I have, at different times in my life, felt and said that I was tired of fairs; that they were pretty much the same thing every year; that I had no objections to offer, if people wanted to go and enjoy such things, but that I would not go across the street to see all they had to show. Did you ever feel that way, my friend? Well, now, if you have any confidence in my ability to advise, let me tell you that such thoughts are wrong. I believe they are Satan's promptings. You have no right to stay away from all kinds of gatherings, even if you do feel like it. There are duties and responsibilities that fall upon you naturally, and which you can not discharge unless you are among the people and acquainted with the people. If things are managed badly at our fairs, go with the spirit of Christ in your heart and cheerfully take hold of the task of making them better. I am sure the same is true in regard to bee-conventions and class conventions of every description. Besides, in the end it will pay you to go. You may not realize at once that you have been benefited; but, go to your State and county fair; look at every thing that is to be seen; endeavor to understand how different industries are carried on; ask the purpose and use of every thing you see, with which you are unacquainted, and you will, even if you do not realize it at the time, find out afterward that you have acquired valuable knowledge—yes, very valuable. A great many times I see people wasting time enough in accomplishing some desired end to have done it a dozen times over had they known of cheap little implements already in the market for doing this same thing. Many times you pay a hired man money enough for a single week's work to have paid for a tool with which he could have done the same work in one day. Go to your county fair; take along the produce of your farm or the product of your workshop. Explain to the crowds you will meet there how your work is done, and why it is worth the money you ask for it. Let your light shine.

Only a single roadway separates our market-garden grounds from our county fair-grounds, and therefore it is an easy matter for me to exhibit any thing I may have for sale. Last year we made a display of honey; and for the purpose of showing it to good advantage we had a little building put up, which our artist has shown you on p. 816.

You will notice, friends, that there does not seem to be a very large crowd around the building. Well, when the artist came around to take it, there did not happen to be many people around at the time. I guess it was just about time for the horse-races, and so it is mostly women and children who remain around the stand. In the center of the building is a pyramid of shelves. This was mostly filled with cabbages, large ones at the bottom and smaller ones at the top, until the top shelves had some that weighed only a pound apiece. These we offered for a penny. Many of them were the product of the shoots that put out from the stumps after cutting our early Jersey Wakefields. A basket of them was kept on the counter, with a neatly printed card, reading, "Only 1 cent each, or 10 cents per dozen." The counter, clear around the outside, was covered with beets, squashes, potatoes, cucumbers, tomatoes, baskets of peppers, etc. But the particular vegetable on exhibition was "White Plume" celery. This was arranged in celery-glasses, clear around the building. We soon discovered that people were at a loss to understand whether these vegetables were simply for exhibition or for sale, so we put up little boards, saying, "These vegetables are for sale." Another board was put up on another corner of the building, reading as follows: "Some of the products of our Medina clay soil." This was for the encouragement of those who were in the habit of saying that certain things could not be raised in Medina clay.



A GLIMPSE FROM OUR COUNTY FAIRGROUNDS, WITH OUR BUILDING FOR THE SALE OF GARDEN VEGETABLES AND HONEY.

The individual behind the counter, with a package in his hand, is supposed to be your humble servant, and I stayed there the greater part of the three days the fair was in session. I formed, during these three days, many new acquaintances, exchanged new ideas with hundreds of people, and learned some very important and valuable facts by talking with old farmers. At first it seemed rather dull, but I had made up my mind that it was my duty, and I determined to carry it out. I have already told you of the difficulty of selling the products of our modern agriculture. Our ground is now getting in such a state of cultivation that we raise more on a little plot than our whole town can consume; in fact, it begins to be quite plainly apparent, that, on the ten acres we now have under cultivation, enough garden-stuff can be raised to sell in our town of less than 2000 inhabitants so as to amount to between *two and three thousand dollars* yearly, in *cash*. The principal difficulty that meets me now, however, is, that it costs almost as much to *raise* and *sell* the stuff as we get for it; therefore we must reduce expenses by making horsework take the place of handwork; and we must also learn to raise fine products that will command high prices, without very much labor in getting rid of them. Well, the county fair promised to assist greatly in all these points; and by the close of the third day I was very much pleased to find that my plans had been realized. The principal crop sold was the celery, and the "White Plume" celery is just the thing for such an undertaking. When you get any sort of commodity started on the fairground, it sells itself. If a man or woman is seen with a nice bunch of celery in her hand, everybody she meets wants to know where she got it — price, etc.; and by and by, if you do *your* part faithfully, you will soon have everybody on the fairground wanting a bundle of celery. We sold 75 lbs. to the dining-room people, and we retailed enough more to make it toward 500 lbs. Our retail price is 5 cts. per lb.; but to the dining-room people, or anybody else who buys 100 lbs. or more, we sell it for 3 cts. per lb. Cabbages sold pretty well, but the celery was the great staple of our vegetable and honey-stand. Honey is now so staple an article of diet almost every day in the year in Medina that we sold but comparatively little this season.

You will notice baskets hung around overhead. These are a great convenience in any such business. The baskets can be furnished for 5 cts., at a small profit, and a great many times people will buy things if they can get a basket to carry them in, when they would not take them otherwise. Have your baskets handy, and have every thing handy.

We kept paper bags right under the counter, on a shelf prepared on purpose. I learned a great many things in selling before a crowd like the crowd you meet on fairgrounds. One important thing is to be always *busy*. There were three of us taking care of the stand. The man who had charge of the honey kept busy most of the time in filling little glass pails with honey. The woman who assisted employed her spare moments in shelling lima beans. The beans were retailed at 10 cts. per half-pint berry-box full. I was kept busy most of the time in weighing the celery, clipping off dark or discolored leaves, and filling up the celery-glasses. When the contents of a glass were sold, it was slipped into a paper bag; then some more celery was weighed out and put in its place. Many customers came up with a rush, and were in a hurry, therefore I had my paper bags already open, the bottoms pressed out, and every thing in readiness so I could do up the package in a twinkling. You may ask, "Why not have them wrapped up beforehand?" My friends, that does not work well. Customers want to see things, and examine them before the articles are wrapped up. Now, this one thing of being busy is very important. A man who sits down and smokes until purchasers come will not sell half as much as the one who has his coat off and is busy. Somebody says, "What are they at work at down there?"

"Why, they are selling celery like every thing. Just see. They are taking it off just as fast as that fellow can wrap it up. Let us go and look at it."

When they come up to the stand, somebody says, "Where did this celery grow?"

I reply, that it was raised right over the fence, and show them where they can see the white tops of it glistening through the trees. Then come a good many questions; and when people find it can be raised on our soil they naturally inquire if plants will be ready for sale the next spring. I tell them that we always keep strong transplanted plants ready for customers, from the first of April to the first of September. Thus you see our plant-business is advertised.

Then somebody wants to know about Terry's system of raising potatoes. My reply is, "Friends, you can see the potatoes growing right over the fence there, and here is Terry's book, that tells all about just how to do it; and here are some of the potatoes, just as they were dug—no small ones thrown out at all. They come out of the ground just like this."

Now, almost every farmer's boy is interested in nice fruits and in nice vegetables; and especially is he interested when he sees the man behind the counter "just taking in the nickels like every thing," for something that *he* can raise on *his own* grounds. All parties are benefited. The talk in regard to the things is a means of educating the people, and the result is a developing of the resources of our nation, the encouragement of agriculture right around our homes, and especially the encouragement of getting large crops on small areas of ground, thus bringing the whole matter within the scope of people of humble means, and those who have only small homes.

CHAPTER XXVI.

Be ye therefore perfect, even as your Father which is in heaven is perfect.—MATT. 5:48.

Some of the friends may wonder what the above text has to do with raising garden-stuff. Well, I hope I may be able to make it plain that it has a great deal to do with it. At our teachers' meeting recently, the question was asked whether it is indeed possible for *every one* to attain to the *high* graces of Christian life. Is it within the powers of ordinary individuals to lead sanctified, holy lives? I asked the chairman of the meeting to let me talk a little; and when permission was given me to "talk," I told the friends that I felt sure that it *is* within the power of *every one* to lead a life of purity, but that, like almost every thing else in this world, it needed watchfulness as well as prayerfulness. It is as surely possible as it is for one to be proficient, and to excel in business matters. And then I told of some of our trials in getting clerks who could do business without committing annoying and expensive blunders. Our book-keeping, perhaps, requires the most care and precision of almost any one department. When help is needed on the books, we try first one and then another; and may be we get discouraged, and sick of thinking of bringing any *new* help at all, it is so rarely we find somebody who can be trusted. In using the word "trusted" I do not mean that it is difficult to find those who are *honest;* but the great difficulty is to find some one who is *careful*—always careful. The clerk who *credits* a man when she ought to *debit* him can not hold her place very long. She may explain that it was an accident, and nothing intentional; but the world at large nowadays demands accuracy; it refuses to be satisfied without it. Well, at one time I decided that such positions must be given to none but elderly people, say those toward forty years of age. Pretty soon, however, a girl in her teens upset all this philosophy by showing more care and precision than any one who had had any thing to do with the books for a long while, and she did this, too, with only a *few months'* experience. I was astonished to see her go along day after day, doing every thing just right, and doing it in so quiet and still a way that one would hardly know that she was in the room. I began to make it a study to see where the secret lay. For the help of others who had failed I wanted to discover some great truth that might be helpful to the rest. I found it. A great part of her success was because, while at work, she did not take her mind nor scarcely her eyes off from her task. She never spoke to any one unless business demanded it; and it seemed surprising that she could keep the run of things, to the extent she did, and yet ask so few questions. No matter who came into the room, or what was going on, she never looked or seemed to notice. Had an earthquake occurred here, such as the friends had in Charleston, probably she would have looked up and inquired what the matter was; but I rather think, my friends, she would have been one of the *last* to stop her work. You see, she was in the habit of letting nothing divert her from the work in question; and I believe the greater part of the mistakes that are made in this world are because the one who does it was looking at something else, or thinking of something else besides the work in hand.

Now, I do not mean to be partial to the other sex, and I am happy to state that we have boys in our establishment who do just about as well. While age is an advantage, it is only *one* of the elements of success. You may say it is natural for some people to be careful and accurate, while it is not natural for others, and that you have no right to expect it. I admit this; but for all that, the same rules will apply in any kind of life—making garden or driving team. Have your thoughts about you, and bend your whole energies to the work about you; and if you succeed, you *must* do this. Whether you are *hired* to drive horses, or whether the team is your own you are driving, to make a success of your business your heart and soul must be in it. I think our text touches the spirit of the matter. Never stop short of absolute perfection; that is, so far as it lies in you. In spiritual things I think the same rule applies. The question comes up constantly, Which shall it be—self or the honor and glory of Christ Jesus? You are perfectly free to decide which. If you let *self* rule, you may obtain a momentary gratification many times; but if you let the teachings of Christ take the place of selfish feelings, the result will be a full and glorious character. A self-sacrificing spirit will ultimately make your life a blessing to *yourself* and a blessing to those around you; and, if I am correct, most of our troubles come from letting self rule, instead of Christ's spirit. Sometimes it seems very, very hard to put down self and exalt the Master; but it can be done, and must be done. In business matters, also, it is hard, many times, to succeed in making your business pay expenses, especially with the sharp, keen competition that is round about you.

And now I want to point out one more difficulty in making business a success. You will have to strive and work hard, just as you strive and work hard to have a clear conscience, and to be at all times *pure in heart.* You must not let expenses exceed your income; that is, you must not pay out more money than you take in. You may feel like complaining that your lot in life is hard. Satan will tempt you to feel that you are working like a slave, and he may tempt you to revolt, and declare you won't do it, and that you are going to take things easy, as others do. Beware of such thoughts. The *ease* that he holds up to you temptingly is not ease—it is *bondage.* Very likely other folks around you seem to succeed without half the exertion you are making. That has nothing to do with it. I do not mean that you must overtask your strength, for that would be folly. Take such strength as God gives you, and make the most of it you can. But have your wits about you, and keep watch of things. Suppose, for instance, you are obliged to hire a man to plow your ground. Be sure that, when he makes his appearance at 7 o'clock in the morning, every thing is in perfect readiness for him. And, by the way, before hiring a man with a team I would have an understanding as to how many hours he is to work for you; in fact, the better plan is to have him work *by the hour.* If he comes at 7 and works till noon, call it five hours. A man with a good team should be worth 30 cts. an hour, or may be 35. If he is half an hour late, 15 cts. or more is out of *his* pocket and not *yours;* and if there has been an agreement beforehand, there need be no differences in regard to the matter. If he is going to plow, be sure that the plow is in good order, and see to it the night beforehand if possible. You can not afford to pay a man three or four dollars a day to work with poor tools, nor can you afford to have the team stand still while you have him fuss with the tools. Have a good sharp point on the plow, before 7 o'clock. If you are to furnish him his breakfast, be sure that is disposed of before the time to commence. (I believe the women-folks usually *do* see to that part.) Have the plow on the spot also; have the doubletrees attached; see that the clevises are stout; that the pins that go through them are fastened by leathers, or in some other way. I have seen two men and a team stand still a good many times while they hunted and fretted, may be, for a pin that came out of a clevis. If there are any bolts on the plow, see that the nuts are turned up tight. The plow should also be bright. Perhaps the quickest way to brighten it, if it is not kept bright, is to run it through a bed of gravel; and when it is once nice and bright I would give it a thorough greasing with the good cheap lubricating oils we have nowadays. A good big jugful or a canful should be always near at hand. Very often the time of a team can be saved by a little forethought. If you are going to plow, and then draw manure awhile, push the wagon up to the manure-heap by hand, if you can not do any better, and load it while the team is plowing. Keep in mind, that, while a man and team is worth 30 cts. or more an hour, the time of one man is worth only from 10 to 15 cts. an hour; and this one man can very often save the time of two horses and two men. For the same reason, a boy and a man work profitably together. It always makes me feel guilty when I manage in such a way that an expensive man is seen going across the lots after a jug of water. After it happened once or twice, I provided three or four water-jugs. Each jug had a cork in it to keep out insects. I prefer corks to corncobs or any such like substitutes. I also want smooth clean jugs. The hands are carefully instructed to take a jug of water along when they are going some distance away to work. A boy at work with a man will do such errands, and, a great deal of the time, find work that he can do as fast a man could do it. When the boy is not wanted for any thing else, he can busy himself in picking up stones and roots on almost any piece of ground. Whoever manages the work needs to be constantly looking forward to the next job, and to make it his business to see that every thing is in readiness for it. The boy can bring the necessary implements, and have them in place. If manure is to be hauled, the manure-forks can be right at the spot when wanted. Sometimes a teamster will be all hitched up, ready to start, and then have to chase about to find his whip. I find it cheaper to have three or four whips than to waste the time of a man and team in looking after one that may be mislaid. Manage so that the team may never have to stand still while a wagon is being greased. Grease the wagon nights and mornings, or on rainy days. It has been urged, that the team ought to rest occasionally, any way. Very well; rest them by all means when they need rest; but if a team is in proper order, and of the proper heft and strength for the work to be done, they rarely need more rest than they ordinarily get. Another thing: The rest that usually comes when hunting for a whip, or fixing a broken tool, *may* come when the horses need it, and it may *not* come when they need it. If a proper *system* is observed in regard to the work, the rest can be given just when they need it, and at no other time.

My friends, did you never feel like saying that some days were lucky days? Sometimes every thing goes right straight along, and you accomplish a great deal more in a day than you expected; and how pleasantly you feel at night, to think that the tasks and burdens that lay before you have all been properly finished! At other times, every thing seems to go wrong—tools break, get lost, things do not come out right, night comes, and almost nothing is accomplished. The latter are the "unlucky" days. Now, the real secret of it is, good management and bad management. *Sometimes* things come out right by accident, as it were; again, by *accident* every thing comes out wrong. The intelligent and successful manager must take advantage of accidents or unforeseen circumstances; he must also look ahead and be prepared for unforeseen emergences. I presume likely, that, if I excel in any one thing, it is in being able to manage a good many helpers, and have them all pay expenses. I believe the first person I ever employed was my brother; afterward a neighbor's boy, and I enjoyed my first teaching, watching and planning the work for them. I used to enjoy measuring their capabilities. When I could make them profitable, more help was employed. Finally I discovered that girls and women could do many things as well, or better, than boys and men, and so I commenced employing and teaching them. One who has hands at work for him must be constantly using his brains in devising plans for shortening the work. In my daily or almost hourly visits through our rooms and over the grounds, I am continually inventing shorter and better methods. In reading agricultural books and agricultural papers I catch hold of many important hints. Terry's potato-boxes, pictured on page 408, have been a great help; and now I make it a point to insist that every thing that is to be picked up, whether sticks, stones, pieces of bee-hives, or roots and stones in the field, shall be put into baskets or these boxes. We keep a lot of them in the tool-house, and a lot of them scattered over the grounds in different places. If left upside down, the weather does not affect the boxes very much. A few days ago one of the men suggested, while he was digging out stumps, that the piles of roots and rotten wood would make good firewood, and he volunteered to pay the cost of drawing a load of them up to his house, if I thought best. I caught the idea at once, for it is some labor to pile these up and burn them. Well, I discovered that it was quite a little task, even with our small boys to help, to pick up a wagon-load of them, therefore the potato-boxes were brought out; and as the roots were dug from the soil they were tossed into these boxes. When the wagon came around, before I knew it they emptied the boxes into the wagon, thinking they were making a great saving then. But I suggested, "Why, look here, my friends, just set the boxes right into the wagon, and don't pour the roots out until you get to the woodhouse where they are to be stored."

"But we can't get as many into a load," suggested some one.

"But, my friends, you can get on even *more* at a load," and I showed them how to put the boxes on top of each other, so that they rode safely.

Many farmers dig their potatoes and throw them in a heap in the fall, and the same with corn; and I have seen them dig basketsful, and pour them down in heaps in the field; then they are picked up, put into the baskets, and poured into the wagon. When the wagon gets to the cellar they are picked up again, and then poured into the bin in the cellar. When they are sold they are picked up another time, poured into the wagon, possibly, picked up *still* again, and poured into the bin or on the cellar bottom of the purchaser. *Our* potatoes are dug and put into boxes, and we have boxes enough so they stand there in those same boxes until they are to be used, or until they are planted the next April. The boxes are of such a size that they can be set in a wagon without much waste room; in fact, we can easily put on an ordinary wagon all the team can draw of boxes. We draw ours to the tool-house, and place them overhead on boards, separated so the air can pass freely up between the boxes. The boxes, as you know, have openings in the sides and bottom, so that the potatoes are thoroughly aired, while they are kept out of the sun. There they are to remain until the weather is so cold there will be danger of freezing, then they go into the cellar, with the boxes placed far enough apart so they still have air. Last year, our potatoes were put into barrels and taken into the cellar at once; but I soon found they were rotting in the middle of the barrels, while they were all right near the outside and near the top and bottom. Think of the amount of slow, expensive, back-breaking work that can be saved in picking up potatoes by using boxes!

Well, the saving of labor is not all. Think of the injury that is done to fruit — yes, and to potatoes too — by pouring them out so many times, and picking them up. Some farmers use scoop-shovels, and there is a scoop-shovel made on purpose to use for potatoes; but isn't it a great deal better to pick them up just once, and not have them handled any more until they are in the hands of the consumer? I would do the same thing with fruits and vegetables of every kind, as far as possible—have them handled only once. I would put strawberries and raspberries into fruit-boxes, and have those boxes put right into the hands of the consumer, without any pouring or scooping up.

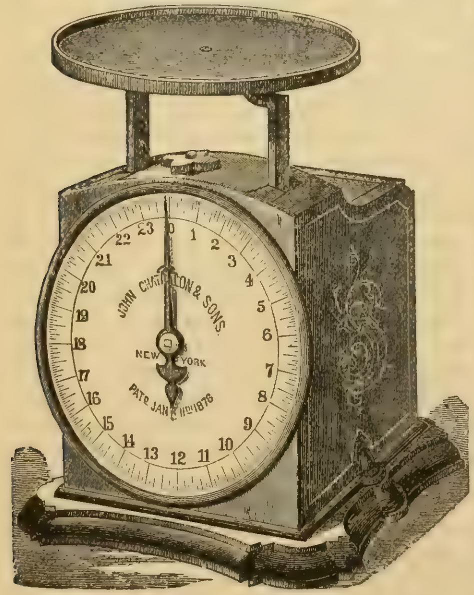
Now, then, in concluding my chapter, which started out with a text enjoining perfection, I exhort you never to stop short of the *best* way of doing things. Don't tolerate imperfect and slipshod ways. Try to do in the best possible way, every thing that is to be done.

CHAPTER XXVII.

A false balance is an abomination to the Lord: but a just weight is his delight.—PROV. 11:1.

The men who go with our market-wagon are Christians, and I do not know but that I might say they are *young* Christians. And let me tell you, my friends, if you have never tried it, there are few better places to test Christian endurance than in going from house to house to sell stuff. Sometimes the best of them complain that it is a wearying and trying business to one's patience. My reply is, "Very likely, boys; but did you never think it is a grand place to show forth the spirit of Christ, and to work for him?" One who can go from place to place, and meet people at all hours of the day, sometimes, as a matter of course, when he is unwelcome, needs to be fortified with a Christian spirit, it seems to me, if any one does. The tradesman who stands behind the counter, needs Christ's spirit too; but he is, in a sense, more independent, because people come to *him;* but in selling garden-produce, on account of the perishable nature of the commodity you are almost obliged to go after your customers.

There are, perhaps, few things in this world that stir up more ill feeling than misunderstandings or dissatisfaction arising from short weights and measures. Our text strikes right at the root of the matter; therefore it behooves the one who sells garden-stuff, to be *just* in his weights and measures. And this calls to mind what I have spoken of before—the very uncertain way in which stuff is sold. Perhaps the most common way with the greater part of the stuff is to sell it by the quart, peck, or bushel; but if you set about it you will find that it is a very hard matter indeed to determine what is a quart, peck, or bushel. When friend Terry started his potato-boxes, column after column was occupied in the *Ohio Farmer* in telling just how large the box should be to hold an exact bushel. If I am correct, it was not settled even then to the satisfaction of all parties. Of course, we know how much a bushel of potatoes weighs, for the law fixes the weight, and so it does that of almost all other produce. But it is not always convenient to take the weight. Potatoes, corn, and apples, are usually heaped up on the half-bushel. Some, in fact, go so far as to say you must put on all you can make stay on. This will do for apples; but when it comes to peaches worth two or three dollars a bushel, most dealers claim that the measure should be only fairly rounded; so you see the quantity purchased or sold is very uncertain indeed. If you buy half a bushel of peaches they are generally rounded up just a little. In transportation they get shaken down so the basket is hardly level full. Now, if you sell them out and heap up your measure there is great danger that you do not get cost for them, let alone the expense of doing business—that is, if you want to sell things on a small margin, and small margins are the rule nowadays—I mean, of course, where you buy the fruit to sell again. We sell fruit on our wagon along with vegetables, to help pay traveling expenses. By the time our wagon had been running about six months, we discovered that by far the better way is to sell things by weight. Look at the market reports in any of your papers, will you? Cabbages are quoted at from three to four dollars per 100 heads. Now, the heads in our field weigh from one to ten pounds. Beets, onions, radishes, asparagus, pie-plant, etc., are usually sold by the bunch. Well, what does a bunch weigh? Sometimes more and sometimes less; and this leaves it for the gardener to give just as small bunches for a nickel or a dime as his customers will stand. Worse still, the bunches are not all alike. Now, we make our bunches by weight. *We* weigh them up, just so much in each bunch. Our cabbages are put on the scales, and sold for so much a pound; the same with celery, squashes, etc. The nicest thing for weighing small quantities is the little scale below.



THE "FAVORITE" FAMILY SCALE.

The scale stands in a convenient corner of the wagon. When the purchaser picks out just the article wanted, it is dropped on the scale, and both parties can see at a glance just what the article weighs. There has been one objection made to this—that a certain squash or melon may be more desirable than the others. Well, our plan is to fix the price at so much for first-quality goods. An indifferent specimen is sold at a less price per pound. Celery is sold the world over, I believe, at so much a root or dozen roots. In our grounds we have a good many roots that weigh a pound each; but by far the larger part of them do not weigh half a pound each. Is not so much a pound by much the fairest way?

Since school has commenced, the small boy we had on our wagon is obliged to attend school, and two men now take charge of the wagon. We have the lines lengthened out so the driver can stand on the step at the back end of the wagon. See cut opposite Chapter XXI. While the driver stands on the seat, his scales are on the low shelf at his right hand, ready to drop any article on them that needs to be weighed. Two men manage the wagon entirely. A trusty horse is used, and a couple of hooks are fixed to hold the lines right at hand on the back end of wagon. Whoever gets through with his customer first, takes the lines and drives along to the next stopping-place. The wagon seldom fails to make a trip on account of the weather. A rubber blanket is carried along to cover the horse when it is rainy. Pieces of enamel cloth of suitable sizes are in readiness to cover articles that may be injured by rain—honey-jumbles, some kinds of fruit, etc. The receipts from the wagon average, in cash, from 50 to 60 dollars per week, going every forenoon. The expense of the trip—men, horse, and wagon, is about $2.00 for each forenoon. Thus you see it costs 20 per cent, or one-fifth of the value of the articles, to sell them; therefore if any one will come and take our stuff from the grounds, in quantities sufficient to gather the crop to order, we can afford to let him have it for one fifth less. We estimate, also, that we can not afford to carry any article on the wagon unless we can make a clean profit of at least 25 per cent; and sometimes even this is too close a margin. Peaches that cost a dollar a basket can not well be sold for less than $1.50 on the wagon.

To be continued Nov. 15, 1886.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

AN INCREASE FROM 4 TO 26 COLONIES.

ABOUT two years ago I bought two colonies of bees, and had one left in the spring. I also bought one of your A B C books and commenced to study it. That summer I got a queen and ½ lb. of bees of you, and let them out in my empty hive, with one frame of brood taken out of my other hive. They went to work immediately, and did first rate; so by fall I had five colonies, but I got only a little surplus honey. Last spring I had four good strong colonies left, one weak. One died in June. I divided them, and made eight colonies of them; then in about two weeks they commenced swarming. Oh my! how they did act! I had no hives on hand, and had to make them by hand. You can rest assured I was busy. They kept it up until I had 26 colonies before I could stop them. I put three back in the hive they came out of, and tore down the queen-cells, and had two swarms go off. When they stopped swarming they commenced storing honey.

I had about 500 lbs. of surplus comb honey, and have 26 good strong colonies with plenty of stores for winter. E. R. FOSMIRE.

Cromwell, Union Co., Iowa.

GIVING FRESH AIR TO CURE FOUL BROOD.

About June 10th I bought 7 colonies of bees for $1.00 each. They each had foul brood in them in all stages, from larvæ 3 days old to workers nearly ready to hatch. I moved them 9 miles to a new locality, and for 2 weeks the odor from them scented up my whole apiary of 28 colonies. All I did was to go out every night and lift the covers off and pull the cloths from off the frames to give them fresh air. As soon as I commenced uncovering them at night, so the dew could fall on them, they commenced improving, and now there is not a sign of foul brood among them. Two of them superseded their old queens. The two young queens are extra prolific, and all 7 of them are doing well.

The honey crop in this part of the State is extremely small and poor in quality, there being but little basswood bloom. W. W. SOMERFORD.

Navasota, Texas, Aug. 15, 1886.

Friend S., I should be almost inclined to believe that you did not have the real foul brood if you cured them by giving them fresh air only. Perhaps the change of locality had something to do with it. If such were the case, they may have been gathering something in their old locality which brought on and sustained foul brood, and the change removed them from the cause. Or, possibly, as some claim, they got well themselves.

SWARMING AGAIN; AN EXPERIENCE SIMILAR TO G. F. ROBBINS'.

I will now make my report for 1886. I commenced the season with 80 stands, and bought 8 more in box hives for $10.00. I increased to 120, but have doubled back to 112. I took 3000 lbs. of comb and 1000 lbs. of extracted honey. I have sold most of my comb honey at 12½ to grocers, and 15 cts. retail; extracted, 8 and 10 cts. respectively.

The season here opened splendidly with maple and willow, cottonwood, fruit-bloom, locust, and raspberry. All came in in their turn, so that but few of the bees needed stimulating. I have never been able to get the bees to take artificial pollen, probably on account of the abundance of early flowering trees, maple, willow, elm, cottonwood, etc. White clover came on about ten days earlier than usual; and as I was engaged in other business, it found me unprepared for it; but having plenty of materials I soon had surplus arrangements on all, and all went nicely till the first of June, when they took the swarming fever. I shaded the hives and tried to give plenty of room, but swarm they would — first swarms, second swarms, and re-swarms, or those that came out after hiving. One hot Sunday there were 14 of them in all. Often two or three would go together. I would generally hive them together, as I had no time to look up queens, and could find but little help. Well, if you want to know any more, re-read G. F. Robbins' "Fun among the Bees" in GLEANINGS of Sept. 15th. The excessive heat and abundant flow of honey was the cause, I think. The weather turned dry the last of June, and closed the honey season. Spanish needle, though full of bloom, was an entire failure.

I have tried Heddon's plan for preventing second swarms, and have generally succeeded.

Chillicothe, Mo., Sept. 30, 1886. BEN A. RAPP.

THAT CARNIOLAN QUEEN.

I have seven colonies now. I started with two in the spring. They are all in good condition, and are gathering considerable honey, which I will begin to extract in a few days. I have increased two by natural swarming, and three by nucleus.

I bought a Carniolan queen (so called, though she resembled a hybrid) last month, and, observing queen-cells in the hive recently, I put a drone-trap (Alley's) in the entrance, as I am much away from home. The swarm came out a week ago, and clustered in an apple-tree a few feet away.

A boy of 15, who had no experience, managed to get them into a hive after much work, and had them to swarm out once or twice. When I got home I gave them some young brood, foundation, etc.; and though puzzled about the drone-trap and queen, I decided they must have a queen or they would not have swarmed. The queen was not in the drone-trap nor in the parent colony either, so I gave the hived swarm a couple of queen-cells to see if they had a queen or not, for I could not find her. They accepted the cells, proving, I suppose, that the Carniolan queen was lost.

One cell hatched the day following the swarm, while I was looking at it, and the young queen was received. They swarmed out again, however, that day; and as it was a big one I hived it also, making two colonies of the first swarm. Every thing seems to be going on right now, after a week, both swarms having young queens, one of them now laying.

A SWARM COMING OUT IN THE RAIN.

I am quite puzzled how my Carniolan queen could have left the hive with the trap in the entrance, and in what way she got lost. I can not understand why the first swarm sent out another on the following day, and a rainy one at that. They had a clean hive, lots of room, young brood and two cells, yet they came out in the rain at 10 o'clock, and hung on the tree until I got home at 5:30 P. M., when I easily hived them.

It seems to me that after-swarms are always liable to issue if you leave a number of cells in the hive. One of the smallest colonies in which I had been rearing queens swarmed out as soon as the cells began to hatch. I cut the swarm from a tree and let them run into the hive from which they came, and they accepted the situation, and are working contentedly. The first queen can not be depended on to destroy the remaining cells, even when the colony is small. F. M. POTTS.

Media, Del. Co., Pa.

INTERESTING FACTS IN REGARD TO SILVERHULL BUCKWHEAT; THE HONEY NOT DARK BUT LIGHT COLORED.

When I bought those 5-cent packages of European silverhull buckwheat I intended to report whether it turned out well or poorly. Well, for honey the bees work on it the same as on the common. I caught and dissected a bee, and found light-colored honey that she had gathered from it. This made me feel hurrah like; but in a few days after, when passing through a buckwheat-field (I had thought the thing over before, whether *any* buckwheat honey is dark inside of a bee). I opened one, and found the same light-colored honey. Now, why is it dark inside of the hive after they have finished it?

I counted the seed on one stalk, and found 1292, which is near enough to 1300 to call it that; 1300 fold—how is that? If you sow at the usual rate of one bushel per acre you would have 1300 bushels per acre; but these grains are so small that one-half of this amount would be as thick as one bushel of the large would make it; then if you want the yield to be 1300 or even 1000 per stalk, you would have to sow, I should think, about 4 qts. per acre, and take care of it the same as you do corn, which would be—let's see—1300 divided by 8 equals 162½, per acre, which might be done—on paper, at any rate, and could be sold, if sold at Henderson's prices, $5.00 per bushel, for—my! I won't tell, for some one will buy up all the buckwheat and monopolize the whole thing so I shall be left. Now raise your buckwheat on land, and it will be 20 bushels per acre, at 40 cts. per bushel, as this is called a very good yield for this locality; or if you intend to raise 40 bushels per acre you will have to take as good care of it as Henderson does with his, which few do. J. L. HYDE.

Pomfret Landing, Conn., Sept. 27, 1886.

Friend H., I think the reason why the honey was light-colored was because the quantity was too small to show the coloring matter in it. Venders of syrups put their samples in thin glass bottles, and by this means they make a very dark syrup appear very light colored.—I think it would be possible to get an immense crop on a single acre of ground, if the soil were prepared so that it would be exactly suited for buckwheat, and the proper number of plants, and no more, were on each square foot of ground. We are, however, far from such an attainment as *you* mention. The number of seeds you mention on a stalk must have been an enormous product. I do not think I have ever seen any thing like it. We have about two acres of the European silverhull buckwheat, and we propose to offer it for sale at the same price as the ordinary silverhull; or, if you choose, let it take the place of the ordinary silverhull. Forty cents a bushel is lower than I have ever known buckwheat to be sold for in our vicinity. We pay from 75 cts. to $1.00 a bushel, even where we buy 100 bushels at a time.

REPORTS ENCOURAGING.

A REPORT ENCOURAGING, IN POETRY; FROM 14 COLONIES TO 62, and 1700 LBS. OF HONEY.

WILL you permit me to give you the present year's report from 14 colonies, two of which were queenless in April, and had to wait till they raised one, neither of which swarmed nor gave any surplus, except a few lbs. from the brood-chamber? Two others had drone-laying queens, which I did not discover for more than a month, from one of which I got no surplus, but had to stimulate till they raised a queen.

I sold my bees this year,
I kept but just a few;
But fourteen stands and little care,
Increased to sixty-two.

The surplus, too, would seem,
When added up, was found,
Though weighed with care, it kicked the beam
At seventeen hundred pound.

They're ready now for winter, too,
For yesterday I found
Each hive weighs now from sixty-two
To sixty-seven pound.

Of stores, an average
Of one and thirty pound,
Exclusive of the hive or cage
That does the bees surround.

And yet I think they may,
While resting on their oars,
Have fifteen hundred pounds to-day,
Laid up for winter stores.

One colony alone
Gave me three hundred pounds,
And you can choose it when you come,
If better can't be found.

And one, with extra queen,
Two hundred eighty pound;
And biggest swarm I've ever seen,
That weighed about ten pound.

I have no more to feed;
Each hive has now its store,
And six pounds more than each will need,
Or ever had before.

HENRY LARGE, per daughter.

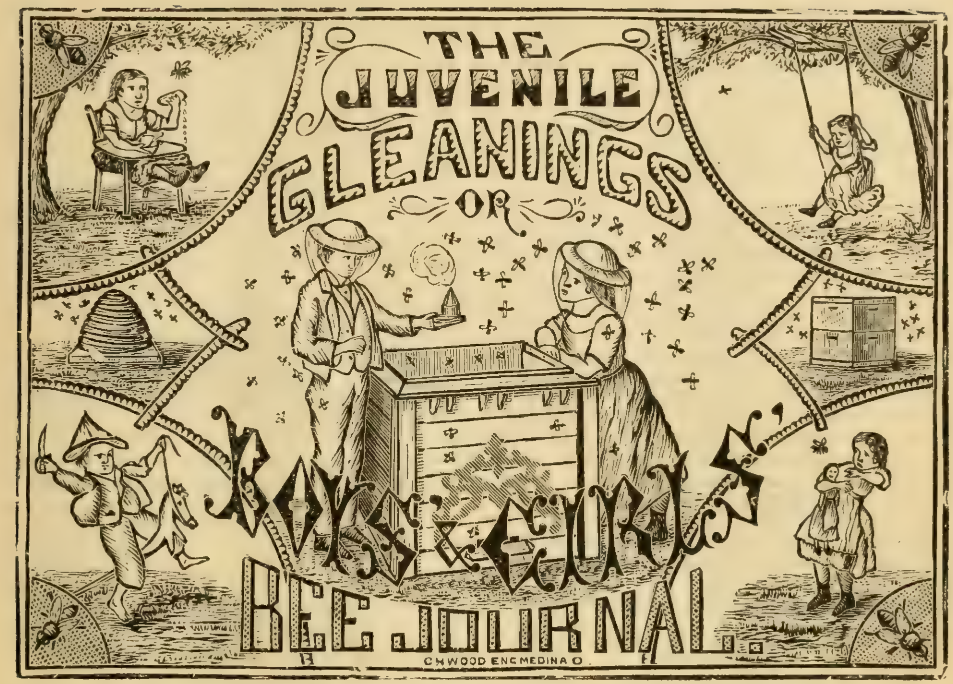
Whigville, Ohio, Sept. 28, 1886.

REPORTS DISCOURAGING.

A BAD YEAR IN TEXAS; SAVAGE CYPRIANS.

TWENTY-ONE years ago I began bee-keeping, and never saw in all this time so disastrous a year as this. I went into winter with 56 colonies of Cyprians in my home yard, and 20 colonies of Italians in my Dresden yard, three miles off. I now have the same number, and not 3 lbs. of honey per colony yet. It has been almost impossible to raise queens, and my queens behave so badly away from home that I am afraid I shall have to quit the Cyprians, in self-defense. Bro. Boomhower stung almost to death, and Bro. Doolittle had to hunt the wood-shed on account of my stinging Cyprians. The April and May drought did the work. In parts of the State, flock-masters (sheep) had to kill the lambs to save the ewes, and some of the flock-masters paid off their shepherds and turned their flocks loose to starve, or be killed by ravenous wolves. In many places in our State, no rains have fallen in from 7 to 14 months. We are not quite that dry here. I have made half a crop of wheat, and one-fourth crop of oats and rye; corn is fair and cotton good, and we may yet get honey.

Dresden, Texas. 21—B. F. CARROLL, 76—76.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

Blessed are the pure in heart, for they shall see God.—MATT. 5:8.

I DO not believe it is, as a general thing, a good plan to visit our neighbors on Sunday; but there is one kind of Sunday visiting that I have been doing for ten years or more, and I have been so greatly blessed in this kind of Sunday visiting that I like to talk about it. It is visiting the inmates of our county jail. A few days ago I was told that a young man had got into our jail, perhaps to stay many months. I found him in his cell, lying on his bed, sick. I at once thought of the text, "I was sick, and ye visited me; I was in prison, and ye came unto me." As soon as he put out his hand to me and smiled, something flashed across my mind that I had seen him before. He was quite a good-looking young man, dark eyes, and pearly-white teeth that showed plainly when he laughed. Where had I seen him? Years ago he used to come to our Abbyville Sabbath-school, so he told me. He was then but a boy, but now he was a man—sick, and in prison. His temperament was one of those peculiarly happy ones: it is natural for him to be pleased at all times with every thing. He seems to be one of those individuals who see something to be laughed at in almost every feature of human life. Poor Henry! I am afraid, although he did not tell me so directly, that this boiling-over good nature of his —this exuberance of fun, had something to do with his getting into prison. Do you think it strange that a happy disposition can be dangerous? Well, it *is* a little strange, my young friends, but I am afraid it is nevertheless true. Henry's pleasing ways, together with his good looks, I am inclined to think, made him a general favorite; and as he grew toward manhood he got to be a favorite with women-kind as well as men, and this brought him to prison. I can not well explain the details before our juvenile readers here, but I may say this: He had just got married to one woman, when, according to the laws of our land, and the laws of God, he should have been married to another woman. I can easily imagine that a disposition like his might lead him into such troubles. I presume likely he was easily influenced, and may be he was coaxed into something he knew he ought not to do. He was tempted, and gave way to temptation. Had he held fast to the little text at the head of our chapter, and declared in his inmost heart that he would be honest in his heart toward God and his fellow-man, no matter what sacrifice he was called upon to make to keep this purity, he would have been spared this trouble. His natural disposition is to be pleasant and good natured, and he would do almost any thing for the sake of pleasantness and peace—at least, this is my impression of him. But on my second visit, he seemed cast down and discouraged, and in much of a fault-finding frame of mind. He had sent for a doctor, but the doctor did not come, and he was suffering, no doubt, severely. The doctor did not come—nobody came. He even began to complain of his own brother, and of his nearest friends. He felt much inclined to think that the whole world had turned against him and deserted him, and it made *me* feel glad to think that I had remembered him; and although I could not take the place of a doctor, he told me of his mistakes and misfortunes; and although he did not then declare he would choose Christ and his righteousness, I felt that his attitude of heart, when I left him, was something near it.

Now, my friends and neighbors, wherever you are and whoever you are, remember that good looks—yes, even a sunny disposition—may lead you into trouble if you are not careful how you use the God-given gift. I am older than many of you, and I have been saddened by these troubles that have come upon a good many; and let me now, in a closing word of these neighborly talks today, bid you beware how you trifle with these holy relations that ought to exist between man and wife. And let me suggest to our younger readers who have not yet thought much about these holy relations, to beware how they trifle with them in any way. When tempted, just breathe the little text, "Blessed are the pure in heart," and it will carry you safely through all such troubles.

A JUVENILE'S EXPERIENCE WITH SWARMING.

ALSO SOME OTHER MATTERS.

BASSWOOD ended with June; and as it was so rainy during its blooming, it did not produce much honey. The rains kept the white clover going, which is still in full bloom, July 18. Sweet clover, or melilot, grows in acres along the creek bottoms, and it seems to thrive best in gravel and sand banks. The bees fairly roared on it.

Our first swarm came out May 12. It clustered on a bush, was hived on the spot, and immediately moved away, a good piece off, but not far from the old hive. Next morning it came out and began to move off, going slowly and near the ground, in a very straight line, for over a mile. On nearing the woods it raised above the tree-tops, and, after going a short distance, entered a hollow tree that had been before occupied by bees. We then cut the tree, brought them back, gave them a frame of unsealed brood, and they went to work all right. After filling their hive and making 30 lbs. of surplus, they cast a heavy swarm July 1, which now has its hive well filled. Now, do you think the swarm of May 12 sent out a second party of scouts, or did the first party, on returning, find it?

May 26, we had a second swarm come off. It was early in the morning, and the thermometer stood but 60° in the shade. While coming out, thousands of bees fell down in front of the hive. They raised up, and some of them tried to go back, but got into another hive near by. The occupants of the latter rushed out, gave battle, and in a few minutes hundreds were slain. The rest of the swarm scattered out badly, and finally clustered, and was hived on a frame of brood. The next three or four days they fought among themselves and many were killed. Then they went to work. After a while they were discovered to have been queenless, and that they had raised a queen. Do you suppose their queenlessness caused the fighting among themselves?

We had a large first swarm June 23, and it was hived on a frame of brood. It built a considerable amount of comb and honey, and appeared to be all right. The next day it slowly swarmed out, and after a few minutes it began to go into a box-hive swarm. This box hive had got through swarming, and had a young queen at the time, about the age for a wedding-flight. Half an hour before, a young queen was found in front of this hive balled up, and we put her back into the hive. A little later the swarm first mentioned began to move in. Their hive was brought, and as many of the bees as possible were got back by brushing them from off the box hive. But thousands went in, which we never got. Next morning two dead queens were found in front of the new hive, one a virgin and the other apparently a laying queen. The young queen in the box hive must have run out during the excitement the day previous, and was brushed into the new swarm. Both were now queenless. The new hive raised a queen from the frame of brood. A piece of eggs and larvæ was placed in the top box of the box hive, with which they raised queens. Now the question is, Why did the bees swarm out and act so? Could it be that the new swarm had a virgin queen, which, while taking her wedding-flight, fell down in front of the box hive, and that her bees, after finding where she was, swarmed out and followed her?

DRONE ASSEMBLIES.

Last year the drones assembled within half a mile of us. The assembly spread over several acres. I could hear their loud roaring, but could not see them. This year I again found where they assembled, but there seemed to be several assemblies. Two were a quarter of a mile apart.

MILKWEED.

There is a good deal of milkweed near us, and the bees work considerably on it. During its blooming I noticed what I thought to be fighting going on among the bees; but on closely examining them I found out that, instead of fighting, some of the bees were pulling away at the wing-like milkweed pollen on the others' feet; and as thousands of these wings were in front of every hive, I suppose they succeeded in getting them torn off. If this is the case, old as well as young bees can be freed from this wing-like pollen.

A FEW QUESTIONS.

Do bees, when they gorge themselves with honey, while being smoked, ever put it back into the cells again? Does melilot bloom every year? Will swarms that have not quite filled the brood-chamber with comb in the honey-season finish it during fall blooming? CHARLIE L. GREENFIELD.

Somerville, Butler Co , O.

In answer to your first question, I think, Charlie, the scouts that went off while the swarm was hanging on the bush found the hive where you had placed it, and led off the swarm next morning. In answer to your second question, I do not think the fighting was caused by queenlessness, but I do think the *queenlessness* was caused by *fighting*. I think the suggestion at the close of your third query is the right one.—The facts you give in regard to the drone assemblies are valuable. I think drones do congregate thus, and I have no doubt that they sometimes go several miles to form these assemblies.—Bees do put the honey back in the hive after they have gorged themselves on account of smoking; but every time they put it back, there is less of it; therefore every time you smoke a colony of hybrids so as to induce them to uncap their sealed honey, you cause them to lose a certain quantity of their winter stores.—Melilot blooms every year, so far as I know; in fact, I never heard of a plant that was not covered with bloom.—Bees will often finish out unfinished combs during fall blooming.

JUVENILE·DEPARTMENT
F.A.W.

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will recive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

A TALK TO THE LITTLE FOLKS ON PREPARING BEES FOR WINTER.

HOW are those hives getting along, in the back yard? Have they enough stores for winter? If so, are they prepared for the cold with chaff packing? Very likely, many of you have prepared your bees for the cold which is soon to follow; but I fear that *all* of you have not been thus careful, and that you have found it convenient to put it off a little longer. It is to this class of juvenile "putters off" that I am now about to talk. In the first place, I am going to ask, What did you put it off for? One little boy clear over in Wisconsin yells out, "'Cause we don't know how to fix 'em for winter." Another little ten-year-old red-head, with great big freckles on his nose, screams out way down in Texas, "We hain't got no sugar, an' dad says he can't afford to buy none, 'cause bees didn't pay right smart this year, it was so dry." A little girl in the northern part of Maine cries out, "Please, sir, and will you tell us how to winter bees?"

Well, my dear little folks, I do not believe I can; but I will tell you how Sammy and his father in the State of Ohio are preparing their bees. The circumstances run something in this wise:

HOW SAM'S FATHER PREPARED HIS BEES FOR WINTER.

"Say, Sam, what's yer dad doin' with them bees of his?" said Sam's playmate, who lived over across the way.

"Doing with them!" rejoined his companion; "why, he's fixing them for winter."

"What, as early as this, and only — le' me see—the 10th of October? By cracky! I hain't done nuthin' with mine yet."

"You should say, 'I haven't done nothing,'" said Sam, with an air of superiority, evidently shocked at his playmate's grammar, and not knowing that there was still a "mote" in his own eye.

"Oh! nonsense, Sam; you're always taunting me about my grammar and slang. Come! if yer dad is fixing them bees up fer winter, I want to learn how to fix mine." So saying, the boys clambered over the fence into the yard where Sam's father was at work, though Sam stood at a safe distance.

"What yer standing way off fer? These bees won't hurt you," said Jimmy, for that was the name of Sam's playmate.

"No," said his father, when Jimmy explained that he wanted to learn how to winter bees. "Besides," his father continued, addressing his son, "I should like to have *you* learn *too*."

Sam's father, after closing the hive upon which he was at work, opened another. "This colony," said he, "as they have been breeding, needs considerable feeding. They have emptied the bread-pan of feed which I had given them, all in one night." So saying, he lifted off the empty pan. With the smoker in his right hand he gave a few light puffs of smoke, while he slowly pulled off the enameled cloth with his left hand. He next lifted out one of the outside frames.

"Pretty light, and not much honey there," said Sam's father.

The next frame contained still less: the frames in the center of the hive had no honey, but a little sealed brood.

"Sam," said his father, "will you run into the house, and fill this coffee-pot with the sugar syrup I made last evening?"

Sam obeyed, and started for the house.

"Now, don't spill any of it, nor daub the coffee-pot, as you did the other day, when the bees got to robbing so badly," called his father, as Sam neared the house. The bees had got to robbing on that day, and Sam, as a consequence of his carelessness, was stung two or three times; hence his fear on approaching the apiary, for which his playmate taunted him.

Sam quickly returned, and, more than all, the coffee-pot was nice and clean.

"Well done," said his father; "you didn't daub this time."

"N-n-no," said Sam, hesitating; "why,—why, ma poured it for me." His father smiled a little.

"What harm does daubin' the coffee-pot with syrup do?" said Jimmy.

"It is almost sure to start robbing," returned Sam's father; "and wherever the coffee-pot sits, the bees will lick up the syrup, The result is, we have to quit work for the time being."

"Oh!" said Jimmy, "that makes 'em rob and sting. I see. Now I want to ask some more things. How do you feed that stuff to 'em?"

"You will see presently," rejoined Sam's father. So saying, he spaced back the frames and covered them with an enameled cloth, near the center of which the bees had gnawed a hole. The bread-pan was placed alongside of it, and was then filled from the coffee-pot. This done, a cheese-cloth was spread over.

"What's that cloth fer?" said Jimmy.

"That is to prevent the bees from being drowned while taking up the feed," replied Sam's father.

"O-o-oh," said Jimmy. "How much'll you feed that hive—I mean, how can yer tell when they've got 'nuff?"

"I shall feed in this way about 20 lbs. of syrup; or, in other words, until the bees have five or six frames of stores nicely capped over," returned Sam's father.

"But, pa, you won't have to feed all that way," said Sam, who had just now begun to take an interest.

"Oh, no!" replied his father; "a few of my colonies I shall not feed at all, as they have a sufficient amount of natural stores, but a large majority will require a considerable amount of feeding."

"How do you make the syrup?" said Jimmy.

"To 20 lbs. of sugar, add a gallon of boiling water from a tea-kettle."

"That's easy," said Jimmy. "By cracky! if them bees o' yours need feedin', mine do. I must feed 'em to-night." And off he started for home.

"But you won't have time," called out Sam.

"Well, I'll feed 'em to-morrow night, and get the syrup ready to-night," replied Jimmy.

In the next juvenile I will tell you how Jimmy succeeded, or, rather, how he didn't succeed. Ernest.

CHILDREN HANDLING MATCHES.

We give place to the following in this department, hoping that our young friends may read and profit from the results of careless handling of matches.

I had my barn burned, and about 25 tons of nice hay. I had just started my team to hauling the hay to market, and had 4 loads out of the barn. It was a nice new barn, with which I was very well pleased, and every one admired it. The loss will not exceed $600, but it is my whole year's crop, besides the barn, $300.

The way the barn was set on fire is this: We have two little children, and they were playing in the barn, and the little boy found a match somewhere, and the little girl took it and scratched it on the manger. The match broke and flew into the dry hay, and all was ablaze in a twinkle. She tried to carry the fire out, but the wind blew it all back. She then screamed for mamma, but mamma could do nothing then—it was too late. I was away on business. It had not been insured when I left.

Ft. Wayne, Ind. Roland Holmes.

A KIND LETTER FROM A "LITTLE STRANGER."

Mr. A. I. Root:—I am a little stranger, but I don't wish to be one any longer. I would have written before now, but I had nothing to tell you that I thought would be of any interest. Papa is a bee-man. There are but few bee-men in our community. Papa has more bees than any one else I know of in our vicinity.

As every little fellow who writes to you has so much to say about bees, I have concluded to talk on some other subject. I am a little girl, and I love my Sunday-school. I go to Sunday-school regularly, and to prayer-meeting in the evening. I want to so live and act while I am young, that, when I grow old, I may be a useful Christian. I have often said I wished I were as good as you. I am a young member of the church. I intended to read the Bible through this year, but I am afraid I can not do it. Belle Hall.

Sparta, Miss.

ROBBING BUMBLE-BEES.

My brother and I were plowing, and we found lots of bumble-bees, which we kill by taking a little straw, and burning it, and then put it on them and stir them up. One day a little one was hidden in the grass, and he bit me in the foot. When I stepped on him he made me jump. E. Yoder, age 9.

Morton, Ill.

It is just "piles of fun" to fight bumble-bees, I know, little friend, and I used to enjoy it. I presume it is the excitement connected with it which makes it such a favorite pastime among boys. It is just "piles of fun" to tease cats and dogs as well as the poor bumble-bees. But there is a better and less cruel, though, I must acknowledge, less exciting way, to handle bumble-bees. See department of Our Own Apiary, last issue, page 791. I want the boys—yes, and girls too—to report on their success in handling bumble-bees by the plan there prescribed. That is, I want you to show what skill can do. See if you can't astonish your school-friends. Every boy or girl who succeeds by this plan, and promises to fight or tease no more bumble-bees, I will send any thing that may be chosen from the ten-cent counter. Ernest.

HOW A JUVENILE RAISES STRAWBERRIES.

I took a barrel and sawed it in two in the middle. It wants a barrel with two heads. Commence six inches from the bottom to bore holes round the barrel. I bored 17 holes in the first row; 7 inches above that, bore 20 holes. Now put in dirt up to the first holes, then take the strawberry-plants and put the roots in the holes. Take pains to put them in well. Now fill up to the next tier of holes, and put in the plants. Now fill up with dirt, and set the top with plants. It will be best to make one or two holes in the bottom, so that you can not drown them. We have one in our front yard, and it has been a beauty. In the first place, it was full of blossoms, and then full of large strawberries. I should think that two barrels would give one family all the berries they would want. My plants looked nice. Folks stopped and looked at them almost every day. I have orders to make the same. They furnish barrels, and I furnish plants and charge $1.50. G. S. Brown.

Salisbury, Vt.

DIDN'T DO ANY THING BUT SWARM.

I am a little boy. We live 60 miles northeast of Peterborough. My pa keeps bees. He commenced with one colony 4 years ago last spring. This fall we had 20. Last year was a very bad one, and they didn't do any thing but swarm. They filled their hives from the maple in spring, but didn't do any thing with basswood or raspberries. They made some from buckwheat. They did well until last year. ELGIE E. IVES.

Cardiff, Can.

ALSIKE, AND HOW THE BEES WORK ON IT; TAKING DOWN SWARMS.

Papa got an Italian queen one year ago last June, and now he has five colonies from natural swarming. He sowed that peck of alsike clover seed last March that he got of you. The bees were just swarming on it when it was in full bloom. I was afraid to walk through it. He got a fine lot of seed from it too. Papa says that the Italian bee is more industrious than the black bee. Papa values his Italian bees very highly. One swarm went off; and as they were Italians, brother Joe and a neighbor's boy followed them. The bees alighted on a limb 50 feet high. Brother Joe climbed up and tied a rope around the limb, and then cut it off and lowered it to the ground. Then they left that limb and went to another tree. I think they got them down again, but I am not sure; any way, they had to take them three times before they got them to stay down; but they got them hived, and the bees are doing well. CLARA STREBY.

Paw Paw, W. Va., Sept. 16, 1886.

HOW A SWARM ABSCONDED, AND WAS AT LAST RECOVERED.

I am a little boy just nine years old. My papa is a harness-maker by trade. He started in the bee-business two years ago. He commenced with one swarm and increased to 23.

I will tell you about a swarm of bees that went off last summer. When they were swarming, mamma happened to be alone. She ran after them half a mile or more, then she lost sight of them. The swarm was gone two days, then a gentleman of the same town stopped at the shop and told my pa there was a swarm of bees on a small apple-tree in his orchard, and said, "If you go after them you can have them." So pa took his swarming-box on his shoulder, and went where the swarm of bees was. It was about two miles from home, so he shook the bees in his swarming-box, and covered them up with a wet cloth; then he picked them up and put them on his shoulder, and carried them home and put them in a Simplicity hive; and when he examined the bees he found they were his own, that had left. How he could tell that they were his bees was because there were no drones with them. My pa cuts all the drone-cells out in summer. WARREN J. SEITZ.

Clarence, N. Y.

DO BEES TALK?

The following incident was related to me by my neighbor: While examining his bees last winter he found one colony in a starving condition. There was a small cluster of bees in the center of the hive, yet living, but the queen was in one corner of the hive, as far away from the cluster as she could get without leaving the hive. On seeing their condition he gave them sugar, which made them wild with excitement. One bee in particular drew his attention. As soon as it tasted the sugar it ran with great speed to the queen, and, as my neighbor expressed it, bumped its head against the queen's head and immediately started back to the sugar. The queen followed till she reached the sugar, when she gorged herself to such an extent that she died next morning. 5—G. L. JANNEY, 22—38.

New Corner, Ind., Sept. 6, 1886.

The foregoing was not written by a juvenile hand, but I believe friend J. will consider it no disgrace to see his communication among the writings of the little folks, because it bears upon a point we were discussing. We are much obliged for the fact. Is it possible that the little bee, recognizing the starving condition of the colony, knew that, as soon as syrup should be given them, the queen must be fed? And what a queer way of telling her! But she understood it, and it was the bee's way of talking to the queen. I have never yet seen bees signal quite in this way to the queen, or, in fact, to each other. ERNEST.

THE UPS AND DOWNS OF A BOY BEE-KEEPER; HOW HE SUCCEEDS IN SPITE OF REVERSES AT FIRST.

My eldest brother and sister having taken the bee-fever, I took it also. I bought two colonies and an empty hive for four dollars. One of the colonies was in a tree, and the other in a box hive. One day I got my sister to help me, and we went over there, cut the tree, transferred the bees to a frame hive, and got about 15 lbs. of honey, which brought me 10 cts. per lb. I brought both hives home in the fall, and put them where I wanted my apiary.

The next Sunday, Walter's bees discovered the new comers, and turned in and ate up all the honey they had. The Sunday after that, they ran away. I transferred my box hive then; and the Sunday after, they ran away. I was flat in the bee-business then, but still the fever hadn't cooled much. I bought a box hive from Walter for two dollars, and another bee-tree. I cut my tree early in the spring; it had no honey. I transferred into a frame hive, and brought them home, and I also transferred my box hive I got from Walter.

It was a poor spring, and bees ate up all they had, and it looked as if they were going to starve in spite of all I could do. Two or three times I went out there and found them so weak they could hardly fan; but I poured some honey and water on them, and that brought them all right. They managed to live and build up.

Then I thought I must have clipped queens. So one Saturday one of my neighbor's boys was down to see me. I took him out to see my bees, and showed him how I could clip a queen; but she floundered so I couldn't manage her. He then agreed to hold her while I did the clipping. He held her as though he were holding a chicken, and the next morning I went around to look at them and found her on the bottom-board, dead. Well, the bees raised them another queen, and are doing finely. This summer I bought a swarm on a limb. I brought them home in my coat-sleeve. They also are doing well. I have taken about 30 lbs. of honey, extracted. Don't you think this is pretty good for a boy of 14? F. O. SOMERFORD.

Navasota, Texas.

Yes, I think you have done well, considering the "bad luck" you had at first. If you push on in this way you deserve to succeed and will succeed. ERNEST.

TOBACCO COLUMN.

HENRY POWELL has quit the use of tobacco, and requests you to send him a smoker. You can publish his name in GLEANINGS, and I will see that you get your pay for the smoker if he uses tobacco again.

Mineral Point, Wis. REESE POWELL.

I will promise to quit using tobacco in any form. Please send me a smoker. If I ever use it again, in any shape, the man I am at work for will report and I will pay for the smoker, as he is a very temperate man. HARRY CARR.

Goodrich, Mich., Aug. 10, 1886.

I have in my employ a young man 19 years old who has been a constant tobacco-chewer for three years. Under my influence he has been persuaded to stop. It is now nearly a month since, and the hardest of it is over. I told him that, if he persevered, and would promise never to use it again, you would send him a smoker. If he ever does use it I will vouch for the price of the smoker. His name is John Goodhull. C. S. ADAMS.

Williamson, N. Y., Aug. 23, 1886.

BREAKS HIS PLEDGE, BUT HONORABLY PAYS FOR THE SMOKER.

I thought I would write to let you know that I didn't quit chewing tobacco, and I inclose you 70 cts. worth of stamps for that smoker that B. R. Paxson sent for. ELMER DEVENS.

Good Hope, O., Aug. 27, 1886.

We are very sorry to see that you have gone back to tobacco, but we thank you for the honorable act of paying up. We hope you may yet see the error, and pledge yourself never to go back to tobacco again.

THE GRATITUDE AN OLD TOBACCO-USER FEELS TOWARD THIS DEPARTMENT.

I received a smoker from you, with the understanding that I was to refrain from the use of tobacco—a habit which I indulged in for ten years; but I have now decidedly abstained from it, and hope that I shall never feel a desire for it again. I am well aware that my thanks are due to you, and would express them here a thousand times. I am convinced, that if every real Christian would do as much as you to abolish such sinful filthiness, in a few years the weed would be raised no more. I therefore thought to give a mite, and ask you to please send me, for the inclosed, a Dose of Truth. I should like to state to you yet, that I am very well pleased with the smoker; it can't be beat.

New Haven, Mo. TRAUGOTT HERZOG.

KIND WORDS FROM OUR CUSTOMERS.

PROMPTLY TO HAND.

The sections came promptly to hand and are very nice, and I am very glad that you did not have the dovetailed ones to send, as these are certainly very much preferable. ALBERT WILLIAMS.

Sharon, Pa.

ONE TRIP TO THE EXPRESS OFFICE.

The smokers came through all right, both lots of them. They are nice, and I think that the foundation is very nice. It pleases me to have orders filled right off, so that one trip to the express office will do. J. C. MCGREW.

Milnersville, Ohio.

THE BEE-TENT INDISPENSABLE.

Send me one of your latest improved bee-tents. I have used them for two years, and find them indispensable. W. D. WRIGHT.

Knowersville, N. Y.

TERRY'S POTATO CULTURE.

Please find inclosed 45 cents, for which send me Terry's last book. I have his book on potatoes. I am raising some according to his instructions, and it works finely, though we are having a drought. I am pleased with your talks on the "New Agriculture" and gardening. WM. COX.

Viroqua, Wis.

OUR WHEELBARROW.

I received the goods you shipped me last month, and have examined the packages, and find them to be quite correct and very satisfactory. The wheelbarrow is nicer in appearance than any I ever saw, and it will doubtless prove quite serviceable. Its lightness is a great advantage to those who have not a great reserve of physical strength.

The brood-frames and other things in flat are as accurate in fit as could be desired, and the 1-lb. sections are the best I have ever seen.

Media, Del. Co., Pa. F. M. POTTS.

CAN NOT DO WITHOUT IT.

As I am a novice in bee-keeping, I have thought I could not afford to subscribe for more than one bee-paper, and have been and am still taking the *A. B. J.*, and could not do without it, and so, friend Root (as all bee-keepers should be friends), I have come to the same conclusion as to GLEANINGS—I can not do without it. I have only a few colonies—20 in number—at this time; 10 last spring, and 5 the spring before, and I am succeeding so far (thanks to bee-publications and good friends, and especially my best friend, Dr. G. L. Tinker), beyond my greatest expectations. I have taken this year 700 lbs. of comb honey from 10, spring count, and 2 of them were weak. W. S. TAGGART.

Barton, Ohio.

"IN ALL THY WAYS ACKNOWLEDGE HIM."

I have been lent some numbers of GLEANINGS, and desire to express my gratitude to God for the Christian tone and for the witness to the truth it contains. May the good Lord bless you in your testimony to him, and may you ever continue a faithful witness for the truth as it is in Jesus. I fail to see that, in business transactions, all allusions to the truth should be eliminated; for does not the word of God say, "In *all* thy ways acknowledge him"? and in these dark, dark days it is especially needful that our light should "so shine before men that they may see our good works and glorify our Father which is in heaven." I have only lately come here from England with my wife and four sons, and have settled in this country, and I am indeed thankful to know that there is at least one public paper whose editor *is not ashamed to confess Christ.* None of my sons or myself drink intoxicants of any kind, nor do we use tobacco in any form. W. BEERS.

Fayetteville, Wash. Co., Ark., June 1, 1886.

NOT A MISTAKE OF OUR SHIPPING-CLERK.

I appear before you this morning with *hat in hand.* Your faithful packing man was correct about the missing nails, hence I beg pardon of all concerned. I found them snugly hidden in the sections where I did not look, as I took the sections out only as I put them in the frames; and as the rest of the nails were all together in another box, I did not suppose they would be with the separators. I do not count the small pieces, only as I put them together, as I believe you to be *strictly reliable* and correct in your dealings. I will be more particular hereafter. At first I did not like the tin covers; but after putting together and trying them I think them splendid. I wish I had more of them.

Cifax, Bedford Co., Va. E. H. HATCHER.

[Many thanks, friend, for your frank acknowledgment that you were mistaken, and not our shipping clerk. We hope our friends, on reading this, will take note. When they receive shipments of goods from us, and, upon unpacking, *think* they have found something missing, will they kindly continue the search, unpack every thing, and, if the articles are still missing, write us, and we will set the matter right?]

OUR HOMES.

The cup which my Father hath given me, shall I not drink it?—JOHN 18: 11.

EVERY human being, at some time in his life, is compelled to recognize that there is a great unknown world, somewhere behind the scenes, as it were—a world of which we know comparatively nothing. Some unknown power presides in this world, not only calling into existence plant and animal life, but holding in his hand a system of worlds like ours, and wielding them for some purpose of his own. This unknown power has called *us* into existence, for, as it would seem, some all-wise purpose of his own. I believe that most earnest, candid thinkers, also believe that, at death, we are ushered into the presence of this great Being; but it is indeed true, that no one has yet come back from the confines of the grave to tell us what is beyond. We may sometimes catch glimpses of it from the testimony of loved ones when on the borders of the unknown land. But all we get is indeed only a glimpse. I presume many of my readers have often expressed in their hearts a wish that God would speak to us and tell us plainly what are his wishes in certain matters. "Oh that I knew exactly what God the Father would have me do in this emergency!" is a prayer that has often welled up from my heart, and I presume from the hearts of others. I have been told that a young man once wrote a letter to Darwin, asking him if he believed that God had ever made any revelation to the children of men; and, if I remember correctly, Darwin's reply was to the effect that he could not discover that any such revelation had ever been made. I presume likely Darwin meant that there was nothing in the realm of science or natural history to indicate that God had thought fit to break down the barrier that separates us from this unknown world, and stand face to face with the objects of his own creation. Whether or not Darwin meant to ignore the testimony of the Holy Scriptures, I do not know, and I do not propose to discuss the point just here.

Well, now, my friends, *should* God see fit in this present nineteenth century to send a message or a messenger to earth, how would he do it? And if a messenger were sent, how would he make his appearance, and what sort of appearance would he present? Queen Victoria often sends messages to the President of the United States, and may be she sometimes sends messengers. If so, I suppose they come with much pomp and ceremony. They are introduced by dignitaries, and accompanied, probably, by evidences of wealth, refinement, and culture. I believe, however, that the world is not so much given to gorgeous display now as it used to be hundreds of years ago. Kings and queens are human—exceedingly human, sometimes. They are weak and faulty and erring; they make mistakes; they show forth human passions, likes and dislikes. If God should send a message to this world, he would make no mistake. His messenger would probably be without fault or blemish. The question might come up, then, To whom would he probably appear? We here in America would think it proper and fitting that he should first pay his attention to the President, or to the chief rulers of our land. Perhaps, however, some would think it fitting to come first before God's ministering servants, the clergy, and make known to them his wishes in regard to his people. If so, what ministers or what denomination would be first honored by his great presence? Perhaps I am handling this subject awkwardly. I should not be a bit surprised if you thought so, for it is a subject too great for me. It is a subject too great for anybody. The mere attempt makes me feel my utter nothingness. But I do feel as if I had a right, however, to feel satisfied of this: That he would come or send his messenger in such a way as to do the most good to the greatest number. How would he manage to obtain a hearing in this busy world of ours? He might arrest the attention of the people by a series of earthquakes, or mighty thunderings. But after having arrested their attention, would he do most good in that way? If we are going to win our children to righteousness we must come to them with gentle words of love, or we shall be in danger of driving them away and utterly failing in what we wish to do. A father might appall and terrify a child by exhibitions of his enormous strength; but some of us know by experience that "enormous strength" often amounts to but little with a child. Some quite small children will assert their rights, and give exhibitions of a free will. Their disposition is to do as they please, in spite of all the strength that can be brought forward. Many a parent who is not a Christian has perhaps decided in his own heart that it is not by might nor by power, but by a gentle and loving spirit, that he brings his child up in the ways of wisdom and paths of truth.

In the above I have been speaking as a people might speak who have had no knowledge nor conception of the Bible; or, if you choose, a people who *ignore* the Bible. But you will notice that the deduction seems to be that, even if God himself should send a messenger to us, very likely the wisest course would be to adopt very much the plan that we are told he *did* follow, in the New Testament. The one whom he sent, and whom he saw fit to clothe with power, came into the world as you and I did. He lived the life of a little child; he grew up as a tender plant; we are nowhere told that there was any thing particularly comely in his appearance; nobody praised his beauty, so far as I know. As he grew older he was despised and rejected of men. His own brothers, in fact, disliked him. Finally he was a man of sorrows and acquainted with grief. One of the infidel writers says he went through the world a disappointed man, succeeding in gathering only a small handful of humble followers. He did not go near kings nor princes; he made no display, except the miracles which he performed to prove to mankind that he was sent by God the Father. These miracles themselves, however, were of a humble kind. Although the power was vested in him of producing earthquakes, beyond any thing the world has ever yet seen, he never used that power. Only once or twice did he command the elements, and even then it was simply to say to the winds and waves, "Peace be still." He might have chosen an occasion for this great wonder, when kings and princes, and multitudes of learned men were present. He did not see fit, however, to do so, but chose the night time, when he was alone in the middle of the sea, with only a few humble fishermen near him. Instead of doing grand and startling things, he confined his works mostly to the healing of the sick. It seemed, however, to be God's purpose to give a succession of miracles, each one a little more wonderful and startling than those that preceded it. It has sometimes seemed to me as if the class of unbelievers who followed him around had been saying, "Oh, there is not any thing so wonderful about this, after all. The storm may have been ready to stop at just about the time he spoke, and these sick people may have been already mending. Who knows but that they would have got well themselves?" If such were the case, however, God's plan seemed to meet all such skepticism, for pretty soon he raised to life one who was dead. It was only a widow's son, however, and only a comparatively small circle of mourners were present, for it was near a small town or hamlet. He might have brought to life the son of a king or queen; but God, in his infinite wisdom, seemed to feel that, if he came to the lowly and humble, the great could easily stoop down and meet him, or avail themselves of his teachings, if they chose. Had it been the other way, and his work been directed to the great and mighty, how ready the humbler class would have been to say that it was all very well, but that it was not for *them!*

Well, now, if God had planned a succession of miracles, what one should be the great masterpiece or culminating wonder of that whole life? We, in our feeble human knowledge, might have thought there would be wisdom displayed in stepping, from such a lowly and humble life, up and up toward grander things, until the finishing touch should be something that would rend the very heavens, and unveil to mortal gaze the dazzling splendor of the gates to the eternal city. I mean to suggest, that men of the world might have planned it something that way. Please excuse me if I seem to be irreverent. I mean simply to contrast human wisdom with God's wisdom. After that wonderful miracle of raising the widow's son, it is true, a greater one followed in the same line. Lazarus, after having lain four days in the grave, until even his sister feared that his body might not be fit to look upon, or be near, was bidden to come forth; and we afterward read of Lazarus being present at a dinner where the Savior was. After this, can we wonder that his disciples looked expectant toward some greater and grander display of his power? So certain were they that it was going to happen ere long, that they quarreled among themselves as to which one should be entitled to the highest rank when these things should come to pass. It is true, this quiet humble messenger of God told them repeatedly they were mistaken, and that no such grand things were going to happen; but, human-like, they would have it that he should be made king. Who else in this wide earth was in any respect qualified to be such a king as he might be? He was the one whom God intended to be king, without question, and they reasoned much as we would, that the world would soon see it, and they would make him their king any way. The world did catch a glimpse of his kingly attributes, and at one time they followed him, throwing down branches of trees, and spreading their garments in the way, and shouting, "Blessed is he that cometh in the name of the Lord! Hosanna in the highest!" But it did not last long. Jesus was not stirred nor puffed up by these demonstrations. He felt more like weeping; and, in fact, he had wept over the folly and wickedness of humanity. God revealed to him that he was marching to a cruel death, and that this death was to be the final triumph of his ministry here on earth. None of them could comprehend the wisdom and loving kindness of this, God's plan for the redemption of the human family. Jesus seemed to be alone, and deserted by all the world. His most faithful and earnest followers were not only making a sad blunder, but they rejected the very idea that he should die, the victim of the hatred of evil men. When he tried to tell Peter that it was best that he should thus die, Peter vehemently declared that it should not be so. I can imagine how sad and disappointed Jesus felt to see that his most earnest and vehement friend and follower utterly rejected God's plan. When he again and again tried to tell this little band of followers of the beauty of such a life of sacrifice, they either were utterly unable to comprehend it, or they entirely rejected it. When they were disputing as to who should be greatest, he asked them if they were able to drink of the cup that he should drink of. They promptly replied, with awful and almost brazen confidence, that they were able; and one of these two was the "beloved disciple." When the time came, however, they were appalled at the thought of this terrible sacrifice, and all, or nearly all, fled in dismay. It was beyond the comprehension of humanity. It has sometimes seemed to me, that, if Jesus could have had the sympathy and consolation of one single friend and follower at this time, his task might have been by far an easier one. At the mount of transfiguration he was cheered and encouraged by the presence of Moses and Elijah, and we are told that they conversed with him in regard to this very matter. Who knows but that they were strengthening him for this very ordeal? He was not only human in suffering, as we are, but he was tempted by Satan as we are. Satan tempted him in the wilderness forty days, but Jesus came out triumphant. He bade Satan get behind him. It seems, however, that Satan still hung around, and probably all through Christ's life on earth, or until very nearly the close of it. It was probably

Satan who whispered to him that it was a piece of folly, and quite unnecessary, when he prayed in the garden that the cup might pass from him; but when the prayer was not granted, Jesus was able to say, "Nevertheless, not my will, but thine, be done." After this struggle with temptation, I can imagine that Satan left him; but I am inclined to think, however, that he came back during these last agonies. Perhaps the fiery fiend was near with his taunting suggestions when Jesus breathed those last words, "My God, my God, why hast *thou* forsaken me?"

Now, I have reason to think, dear friends, that it is quite likely Satan will try to tempt and torment us, even up to our very last moments. If the Savior was called upon to battle with him, why shouldn't we? This is true, however, and may God have the praise for it, that the same grace that carried Jesus through will carry *us* through. For a long time it has seemed beyond my comprehension why God's plan must include this terrible and agonizing torture. Why should God plan for his only son a death by human hands that strikes us with horror? Again I feel my weakness, and again I feel how utterly unfit I am to try to grapple with this great subject; and yet, as I study these closing words of our Savior, a grandeur and glory begin to unfold themselves to my comprehension, such as I have never seen before. God wants us to be strong and brave; therefore, in giving us a model life to pattern ours by, it must necessarily include a life of courage and bravery and self-sacrifice amid awful suffering. We are called upon to endure hardship in suffering here in this world. Yes, for some reason that we can not understand or comprehend, it seems to be necessary for us to learn to endure suffering; and the question that confronts us is, Shall we shirk it and evade responsibilities and trials, or shall we face them and learn to take them with Christian-like fortitude and courage?

We are finally getting close to our text, dear friends. Peter was going to deliver the Master by fighting. He was acting out just what he said some time before, that these things should not be; and even if all the rest of the disciples had fled, frightened by the mob and soldiers, he was going to give them to understand that *he* was ready to fight, even if he had to fight alone. He could not get the idea out of his head but that the Master needed fighters. Jesus seemed inclined to let them go on, without any effort whatever to escape the impending violence —"As a sheep before her shearers is dumb." Peter deemed it a good deal easier to fight than to be trodden upon. He was one of those people who vehemently declare they are not going to be run over and trampled in the mud by any man. After all Christ's teachings, after all his examples, Peter had no glimpse of a Christ-like spirit. Jesus said, "The cup which my Father hath given me, shall I not drink it?" Peter said, by his actions, "No, we are not going to submit to any thing of that sort." Poor Peter! what a breaking-down and humbling of that haughty spirit there came a few hours later! Peter's fault, however, was more of the head than of the heart. He had no deliberate purpose of doing wrong. There was no cup for *him* to drink which he was rejecting. He seemed unconscious of the fact that there was a good deal of wicked pride in his heart, and that he needed some great lessons in humility. The cup was a hard one for the Savior to drink, just as many of our cups are hard for us. For a time he felt as if he could not go through with it. But the better spirit at length triumphed; and after the triumph he speaks of it as his glory. "Now is the Son of man glorified." And the glory that he alludes to is the ignominious death on the cross.

I presume, dear friends, that you and I will be called upon to pass through terrible trials—trials that will make our flesh creep, and perhaps our beating hearts stand still. Then comes the awful question before us, "The cup which my Father hath given me, shall I not drink it?" Some of us will perhaps say, "I can not, I can not." And perhaps we shall turn away and give it up. What then? Why, if we have let inclination rule instead of a sense of duty, we have started in the Devil's service, and the end will be the bottomless pit. I do not know what these trials will be, nor in what shape they may come; but I believe they come to all of us. May be the appetite for strong drink comes over you as it never came over you before. Perhaps you lie awake, tossing in torture because of Satan's promptings and suggestions. It may be terribly hard to bear; but, my friend, you will simply be tried as the Master was tried. "The cup which my Father hath given me, shall I not drink it?"

My recent visit to the jail, mentioned in Our Neighbors, suggests another form of temptation. Suppose you know it to be your duty, before God and before man, to take one of the opposite sex to be your companion for life; but over and against this duty, suppose circumstances are such that you love another, and that the way is open before you to do as you choose. I know it is a terrible thing to be united for life to some one you do not love. Satan whispers to you, that you had better die first than make such a sacrifice. The recording angel suggests that *duty* is the path of peace, even though it should include *death* in reality. The one course may seem to you to be a whole life of self-sacrifice; but through this life of self-sacrifice, Christ the Savior may be by your side. The other course seems to offer you the greatest happiness you can conceive of, for personal inclination can appeal tremendously hard, as I happen to know. But there can be no Christ with it—no Bible, no religion, no God. Well, it is a sad fact, my friend, that there are thousands who do choose to follow inclination, even though it cut off God and heaven, and the peace that the Savior can give. Now, when you come to such a crisis as this, just read over this text —"The cup which my Father hath given me, shall I not drink it?" Go down on your knees, ask God to help you do your duty, and go forward. Take up the cross, and follow him; and let me whisper to you, by way of encouragement, that by and by that cross will be found easy to bear. Perhaps some of you may think, that, because I am getting old and well along in years, I am forgetting how hard it is to give up some earthly idol. No, I am not forgetting, but I am glad of an opportunity to tell you that these things are, many of them, but fancies —fancies pictured by Satan, most probably. You may imagine you really *love* some one of the opposite sex who is untrue. and even impure. My friend, believe me when I tell you that it is only a foolish, silly notion. The truest, holiest, purest, and happiest love that ever blest man or woman, was a love governed by reason and common sense, and sanctified by the spirit of Christ. This false fabric, built up by the Devil himself, can be brushed away almost as easily as you could brush down cobwebs. All that is needed is the spirit that the Savior breathed in our little text—"The cup which my Father hath given me, shall I not drink it?"

You may be in anger; you may feel for days and even weeks as if revenge would be the sweetest morsel that the world has to offer; but duty says, "Never mind; let it go." And Jesus says, "Do good to those who hate you." An opportunity comes for doing good to this person who has persecuted you. You stand undecided. The old struggle comes up, and you wonder whether it is right for you to do any thing so revolting to your feelings and inclination. Remember how the Savior bade Peter put up his sword, and stood silent and still while they put upon him the crown of thorns and the purple robe. "The cup which my Father hath given me, shall I not drink it?" None present could see or realize that his glory was approaching, save God the Father. And, my dear friend, the glory of your life is waiting for you when you fight these battles and go through these struggles, providing the prayer of your heart is, "The cup which my Father hath given me, shall I not drink it?"

Perhaps you feel glad, or have felt glad, to labor for Christ in foreign lands. Your education has prepared you for it. You step forth in the vigor of manhood, fresh from college. Opportunites are offered you for a brilliant career in business or among the professions. The companionship of cultured and intelligent people is dear to you. The luxuries of wealth are very dazzling and enticing. Your taste for the things you have prepared yourself for through the labor of years may seem, for the time being, to have gone; and again comes the question, "Shall we follow taste and inclination, or shall we follow duty?" It seems hard to bid adieu to loved ones, to forego the pleasures that seem to fall naturally to the lot of your friends and associates. What would Jesus say, under the circumstances, were he in your place? "The cup which my Father hath given me, shall I not drink it?" Your life, perhaps, may bid fair to be a life of toil and privation, or of hardship; perhaps you lack sympathy, and may be you do not even receive kind words; but your duty demands that you stand where you are, and try to brighten the life of some relative, may be, Perhaps that relative is unthankful—may be bitter and sarcastic. May be your whole soul revolts at the imposed bondage, and yet your *duty* lies there. May be the very ease which you coveted—things which you have prayed for, are before you, and you have but to say the word and all is yours; but the probabilities are, that Christ must be left behind if you accept. What encouragement is there for you to waste your life in this way? The encouragement of the example set us by the Master. "The cup which my Father hath given me, shall I not drink it?" Suppose you take these words with you; suppose you say them over and over again to yourself, as you go through the busy cares of life. Do you think it beyond possibility that just these words alone may make these duties joyous? I tell you, my friend, they are the words of life. If you cling to those words, and rejoice at the opportunity of sacrificing for his dear name's sake, your battles are mostly over. Satan flees in dismay; and even though your lot is a humble one here on earth, and among things earthly, glimpses of that great unknown beyond, and of the glory that awaits all who delight to obey and love his holy name, shall be your portion. These words have brought me so much happiness of late that I have learned to associate them with a beautiful little hymn, a verse of which I wish to give you in closing:

Sing them over again to me,
  Wonderful words of life,
Let me more of their beauty see,
  Wonderful words of life.
Words of life and beauty,
  Teach me *faith* and *duty;*
Beautiful words, wonderful words,
  Wonderful words of life.

OUR OWN APIARY.

OR, RATHER, A TALK WITH DR. C. C. MILLER IN REGARD TO TOPICS CONNECTED WITH THE SAME.

A CARD from Dr. Miller announced the pleasing intelligence that he would stop off at Medina on his way to the convention at Indianapolis. On the evening of the 9th he arrived at the Home of the Honey-Bees. The Monday following I seized the opportunity to learn from him many of the little "kinks of the trade," as well as his opinion on the more important issues connected with bee-keeping. While we were standing in the office I remarked to Dr. Miller something in this wise:

"Let's proceed at once to the apiary, where we can there witness the operation of the various devices as well as discuss them. Besides," I continued, "I wish to learn from you a great *many* things while you are here."

A moment more and we were on our way to the apiary, when, opposite the engine-house, the doctor said:

"I should like to see your new engine."

In a moment more we were looking at it.

"A fine one indeed," said the doctor, as I proceeded to explain the principle of the new automatic cut-off.

"You see," said I, "this engine is quite different in appearance. The governor is located on the main shaft, and is connected with these two eccentric-rods, one of which works inside the other, accomplishing what is called the automatic cut-off, and the steam-chest—"

"Yes, that is *very* nice," said my friend, abruptly, with a twinkle in his pleasant eye, as I proceeded with an elaborate explanation; "but," he continued, "time is *very* precious."

"Certainly," said I; "it is *bees* we were to talk about," and glancing at my Waterbury, which I had forgotten to wind, I intimated mechanically that time was flying.

A moment more, and we were walking down one of the aisles.

"By the way," said friend M , "I did not succeed in making that sawdust fuel you spoke of in GLEANINGS work in my Clark smoker."

"Is that so?" I remarked, a little surprised. "We have no trouble with it whatever. I will light my smoker now, that you may see just how we manage to make it run half a day."

By this time we had arrived at the house-apiary door. When inside I showed him the keg containing the sawdust.

"Ah! I see," said my friend. "*Your* sawdust is very different from mine."

"How so?" I queried.

"Your sawdust," he continued, "is more like my shavings, which I use in my smoker. That is, it is stringy—more of a spongy character, and will not pack so solid as mine."

While he was speaking I proceeded to fill and light my smoker. Having dropped in a few pieces of rotten wood, I sent several squirts from the oiler, and in a twinkling had the wood ablaze. I explained that it was necessary to convert these few chunks of rotten wood into coals. I then dumped in a few handfuls of sawdust. "Now," said I, "this smoker ought to run for half a day." I worked the bellows, meantime, vigorously, but no smoke. I continued, but no smoke. Dr. Miller first looked amused, and then laughed in his quiet way. On the contrary, I grew a little nervous, and explained that "I had never had it do that way before." The doctor then told a little story illustrating my case, but I'll not tell it here. I found that, in talking, I had omitted to work the bellows while dumping in the sawdust. I emptied out the contents of the smoker on the ground. I then filled as before, but was more careful to keep the bellows working while I dumped in the sawdust. The result was, I had a good volume of smoke. "Now," said I, "that ought to last four or five hours," which it did, giving a good volume of smoke.

Dr. Miller then explained that he thought he had something superior to the kerosene and the little oiler. To about a gallon of water he adds a pound of saltpeter. Into this mixture he throws his rotten wood. The wood absorbs the liquid, and on drying it holds the saltpeter in its fibers. This, he explained, pushed into the shavings which he uses, will light and hold fire.

"How long do you make your smoker run without refilling, when charged with shavings, and the little piece of prepared wood for holding the fire?" I asked.

"That depends—about an hour generally," was his response. "But," he continued, "it is no trouble to recharge at the expiration of the time. I keep a supply of shavings in a covered box near the center of my apiary; and whenever I happen to go by said box, and my smoker needs filling, I dump in a few handfuls, and go on about my work."

DRONE-TRAPS.

Just at this time the apiarist came into the apiary to commence work. When he came up where we were talking I handed him the smoker I had just filled.

"By the way," said the doctor, when the apiarist had left us, "I should like to see one of the Alley drone-traps."

"Oh! yes, sir," said I. "Here is one on the shelf, and also one of the Batchelder."

The doctor then explained that he had apiaries located out from his home, and that it sometimes happened, during the swarming season, that it was three or four days before he and his assistants could get to them.

"Now," said he, "do you think the Alley trap, from your experience, would catch a queen when the swarm issued, and keep her alive three or four days?"

"I think not, as the trap is now constructed. Four or five hours, possibly a day, would be as long as she would live," I replied.

I then explained that there was a little device for letting the queen go back into the hive, when the bees, discovering her absence, had returned.

"But that is not what I want," said my friend. "The queen for me must be kept alive in the cage for three or four days." After discussing it for awhile, and referring the matter to "A. I.," it seemed at least feasible that the queen might be thus kept after the swarm had issued.

I then attached one of the Alley traps to a chaff hive, that the doctor might see how the bees behaved. As I have, in a former issue, explained, the bees on returning seemed a little confused. While we were watching, a number of said bees passed the trap without any apparent difficulty, and with pollen adhering to their legs too.

About this stage of proceedings father came out and announced that Barney (the boss printer) said they were "all out of copy," and that I must proceed forthwith to my desk in the corner. I left the doctor to take care of himself, and did not see him again till noon.

At the noon service friend Miller gave us a few choice selections of his songs, rendering them in his own good way. I will say, for the benefit of a few of our readers who may not know, our machinery stops promptly at 11.50 A. M., and the hands assemble in the large office. During the ten minutes we have a brief noon-service, at which time the hands join in singing, after which the editor of GLEANINGS reads and talks, ending in a short prayer. For Dr. Miller we had the machinery stop five minutes earlier—something we do not do very often. The doctor threw his whole soul into his music, and I think I never heard such an appeal for Christ through the medium of song as our friend gave us in those 15 minutes.

CELLAR VERSUS OUTDOOR WINTERING.

In the afternoon, when friend Miller and I were together again, the subject of wintering came up.

"I wish," said the doctor, "that you were going to winter a few colonies in the cellar."

"But why winter in the cellar, when we have been obtaining such good results on the summer stands? Besides, it takes more brains to winter indoors. The matter of cellar temperature and ventilation is a problem in itself. Then there is the lugging in and out."

In reply to this, friend M. said that those wintered in the cellar did not as a rule require half the stores of these wintered on their summer stands, and that as regards the lugging back and forth, to and from the cellar, it cost him for hired help about one cent per colony. On a moment's reflection, I saw that cellar wintering would save about 50 cts. per colony on the supposition that it would save about ten pounds of syrup; the syrup I called worth about 5c. But friend Miller, in order to secure proper ventilation, as well as temperature, heats his cellar with a hard-coal stove. I forgot to ask him what part this played in the expense, but I presume that he would say that would be overbalanced by the expense of chaff hives in out-door wintering.

"But," said I at length, "I don't believe we have suitable accommodations, as the cellar which we built for the purpose under our new house has steam-pipes connecting radiators in the room above. At any rate, suppose, friend Miller, you take a look at the cellar, and as you have had experience in this matter, you can advise us."

We went together in company with the apiarist to look at the cellar—a large spacious one with heavy stone walls supporting the brick building above.

"Why," said the doctor, on carefully surveying it, "this would be a capital place."

"But the steam-pipes?" I interposed.

"I think they will cause no trouble," he replied; "besides, with the exception of one or two, they are covered up. A little heat from the pipes will be an advantage. You know I heat my cellar with a stove to bring about proper ventilation. Why, yes, you ought to try a few here for the sake of GLEANINGS."

"Do you really, then, think they would winter here?" said I, brightening at the thought.

"I don't *know*, of course, but I *think* they would; at any rate, you can try," he answered.

"But there are no sub-earth ventilators, such as you have described in GLEANINGS," said I.

"You won't need them, if you put only a few colonies in the cellar by way of experiment," said he.

"I believe, then, if nothing prevents I will try four or five colonies, and report in GLEANINGS," I replied.

On our way back to the factory we began to discuss supers, hives, reversing, etc., but I shall hardly have space to go into details here, though I may occasionally refer to them in future issues.

In justice to Dr. Miller, I will state that the conversation related is not strictly verbatim, yet sufficiently accurate, I hope, to preserve the true shade of ideas.

In conclusion I desire to say, if Dr. Miller will pardon the familiarity of his junior in age and experience, that he is a "grand good fellow," and, better than all, a true follower of Christ. He did not make me to feel at all that he was one of the "big guns" on bees, and for that reason my conversation with him was more free. I believe I never yet fully realized the benefit derived from the interchange of ideas in regard to the subject of bees with a brother bee-keeper. I gleaned many a little fact from our friend, which I could not have obtained from conventions or bee-journals, though I do not in the least depreciate the value of either. These "*un*conventional conventions," as W. Z. Hutchinson has fitly put it, are just what bee-keepers need. In fact, my friend W. Z. will remember that I had with him one such a visit some three or four years ago. I would say, then, brother bee-keepers, get together more; and while you recognize the value of these large conventions, do not ignore the little ones where "two is company and three is none."

ERNEST.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, OCT. 15, 1886.

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from the evil.—JOHN 17:15.

HONEY-JUMBLES.

WE are now able to furnish you a barrel of those nice honey-jumbles for an even $5.00. There are from 45 to 50 pounds in a barrel, and a dozen and a half cakes make a pound, as a rule.

NO MORE QUEENS.

FROM J. P. Moore we have received the following card:

> Please tell the brethren in your Oct. 15 issue not to send me any more orders for queens until next spring, as my season's stock of queens is exhausted, and I am still receiving orders which I can not fill. J. P. MOORE.
> Morgan, Ky., Oct. 11, 1886.

A CORRECTION.

ON page 781 of our last issue, I was in error in supposing that our friend C. C. Miller reflected on publishers and supply-dealers, as our readers will notice by a careful reading of his article. If the doctor will accept my apology, I will try to be more careful hereafter.

A BOOK ON CELERY CULTURE.

THE best thing we have been able to get hold of is a little book of 15 pages, by W. W. Rawson, Arlington, Mass. The book is advertised at 25 cts.; but by purchasing 100 copies, we are enabled to furnish them for 15 cts. If wanted by mail, add one cent extra for postage. It gives full particulars in regard to storing for winter, as well as cultivation.

THE AMERICAN APICULTURIST.

I BELIEVE we have omitted to notice that this journal is now in the hands of our old friend Henry Alley, and so far it seems to be managed with much credit to him. The October number contains articles from Prof. Cook, G. M. Doolittle, Charles Muth, Heddon, and others. As these all write on the subject of wintering, it makes this one number of considerable value.

THE SOLAR WAX-EXTRACTOR.

IN our recent articles on the above, we have omitted to mention that the credit of the invention belongs to O. O. Poppleton, formerly of Williamstown, Ia., who recently moved to Florida. Friend P.'s description and illustrations will be found in GLEANINGS for September, 1883. From the description there given, it seems likely that friend P. used it, even before any of the friends who have mentioned it in California. We have also omitted to give credit in our A B C book, but it will be credited in the new edition, now on the press.

DISCOUNT ON GOODS ORDERED FOR NEXT SEASON'S USE.

DURING the month of November, the discount mentioned on page 755, Sept. 15th issue, will be changed to 8 per cent instead of 10 per cent. Remember, if you want the *10 per cent* discount, get in your orders before November 1.

BUCKWHEAT, ANOTHER USE FOR IT.

ABOUT the time our European silverhull buckwheat began to fill out with grain, one of our hens which had stolen a nest brought out a large brood of chickens. In a few days more another did the same, and then a third. Now, these three broods of chickens have not had a bit of care or attention. We should think they would average ten or a dozen chicks each; but they are so spry in the buckwheat that I have never been able to count them. Here we have three broods of blooded stock that cost absolutely nothing in the way of expense for food, or time and attention, and yet I think not a chick has been lost. Now, why will not those who make a business of raising poultry sow patches of buckwheat at intervals, expressly for the fowls and chicks? If the poultry-raiser be a bee-keeper also, he can raise a crop for his bees and poultry, and the one does not conflict with the other at all, neither is there any expense in harvesting the honey or the grain, providing just about enough be sowed for the fowls and no more.

CONVENTION NOTICES.

Nebraska bee-keepers will meet for their next annual session in Lincoln, Neb., on the second Wednesday in Jan., 1887.
H. N. PATTERSON, Sec.

The Southern Ill. Bee-Keepers' Association will hold its next meeting at Benton, Franklin Co., Ill., Thursday, Oct. 21, 1886, at 10 A. M.
F. H. KENNEDY, Sec.

The annual meeting of the Western Bee-keepers' Association will be held in Pythian Hall, corner of Main and 11th Streets, Kansas City, Mo., Oct. 27, 28, 29, 1886.
P. BALDWIN, Sec.

The semi-annual meeting of the Central Michigan Bee-Keepers' Association will convene in Pioneer Hall, at the Capitol Building, in Lansing, on the third Tuesday of October, at 10 o'clock A. M.
J. ASHWORTH, Pres.
Lansing, Mich.

ILLINOIS CENTRAL BEE-KEEPERS.

In consideration of the meeting at Quincy, Ill., on the 19th, 20th, and 21st of Oct., at the laying of the corner-stone of the Soldiers' Home, the Executive Committee of the Illinois Central Bee Keepers' Society have postponed the yearly meeting at Mt. Sterling, Ill., from Oct. 19th and 20th, to Nov. 24th and 25th. The prospects for a grand success are certainly good, as many active and prominent apiarists and specialists have signified their intention to be present. The meeting will be held at the Court-House, and hotel accommodations are good. We are negotiating with the landlord for rates at the City Hotel, which we think will not exceed $1.00 per day.
J. M. HAMBAUGH, Sec

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Six hybrid queens at 25 cts. apiece, or the lot for $1.25. C. F. UHL, Millersburg, Ohio.

Two mismated Italian queens to spare at 40 cents each. CHAS. MCCLAVE, New London, O.

I have a few fine hybrid queens at 30 cts. each, by return mail.
W. A. SANDERS, Oak Bower, Hart Co., Ga.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—Beeswax. Any amount of average beeswax, at 22 cts., cash on delivery.
E. T. LEWIS & CO., Toledo, O.
17tfdb Apiarian Supply Dealers.

GREAT BARGAIN.—2 printing-presses, 50 fonts of type, cases, rules, leads, etc. Cost about $300; will sell for $125. But little used.
19-20d W. EARLE CASS, Roseland, Essex Co., N. J.

25 STANDS of Italian bees for sale in new chaff hives at $7.00.
20-21d JOHN C. STEWART, Hopkins, Mo.

A GRAND OFFER. Pure Italian bees in new two-story L. hives, only $5.00. I guarantee safe arrival, and 30 lbs. of honey. For particulars, address
20d S. F. REED, N. Dorchester, N. H.

WANTED.—To exchange my Given fdn. mill, good as new. I will take honey, or good winter apples for it. L. BECKWITH, Berlin, Wis.

TESTED Italian and Carniolan queens at $1.00 each, to close out my surplus stock. Italians crossed with Carniolans, 2 for $1.00. Or I will exchange for high-class W. Leghorn chickens.
20d CHAS. D. DUVALL, Spencerville, Mont. Co., Md.

WANTED.—To exchange strawberry-plants, six varieties, for untested queens.
20-21d J. A. GREEN, Dayton, Ill.

WANTED.—To exchange for extracted honey, 5 chaff Eclectic hives, just as good as new, or for cash, at $2.00 each—a bargain.
20-21d F. HOLTKE, Carlstadt, N. J.

ITALIAN QUEENS, tested, $1; hybrid, 3 for $1.
18-20db N. ADAMS, Sorrento, Orange Co., Fla.

WANTED.—To exchange pant cloth and black waterproof cloth, for pure Italian bees. Samples will be sent to any address for offers.
20d T. DREW, So. Hanover, Mass.

THOROUGHBRED FOWLS, 14 different and distinct varieties—will exchange chicks for full colonies of Italians—must have sufficient honey to winter. XLCR POULTRY YARDS, Mt. Vernon, O.

WANTED.—Honey, extracted preferred, in exchange for hives, frames, section boxes, saw-mandrels, and bee-hive machinery. What have you got, and what do you want for it?
20tfdb D. S. HALL, So. Cabot, Vt.

WANTED.—To exchange 17 acres of good land, Lewis Co., Ky., for Italian bees in Simplicity hives. Forty good colonies take the land if in 30 days. Address L. B. POLK, Selden, Fayette Co., O.

WANTED.—To exchange for cash, or good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

FOR SALE or exchange.—One French buhr millstone for grinding feed, 18 inches in diameter; as good as new; will sell for half price.
20d H. L. RICHMOND, St. Johns, Mich.

FIRE! Fire! Fire! Brother bee-keepers, you all want my LIGHTNING FIRE-KINDLER, costing about the same, almost as necessary, and but little more trouble, than matches. Perfectly safe. No litter. Time, temper, and match saving; household convenience. It makes a fire immediately. Lasts a lifetime. Sent by mail for 20 cts.
20tfdb S. S. BUTLER, Los Gatos, California.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4-3db

Foundation - Mill For Sale.

One ten-inch Root comb-mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price $15.00. The list price of a new mill of this kind is $20.00. **A. I. ROOT, Medina, O.**

4 H.-P. ENGINE FOR SALE.

A Bargain for the man who is in need of a First-Class Engine and Boiler.

This is one of B. W. Payne & Son's Eureka engines, the same that we advertise in our catalogue. It has run 3 months since it was new; has had a 10-foot galvanized-iron smoke-stack added, and is in perfect running order. The man who is holding it had to put in a larger one to meet the demands of his trade. The price of a new engine and boiler complete, no stack, is $275.00; but to make a quick sale we will sell this one with the stack for $225.00, free on board cars at Higginsville, Mo.

A. I. ROOT, Medina, Ohio.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

100 FINE PRINTED ENVELOPES,

white, or assorted colors, with name, business, and address on, all for 40 c.; 50 for 25 cts. By mail postpaid. Cards and letter-heads at same prices.
17-22db Address G. F. ROBB, Gilman, Iowa.

VANDERVORT

COMB FOUNDATION MILLS.

Send for samples and reduced price list.
2tfdb JNO. VANDERVORT, Laceyville, Pa.

GOOD NEWS FOR DIXIE!

SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary, **SUPPLIES**

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd **Hartford, Washington Co., Wis.**

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind; a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db **Box 172. Fresno City, Cal.**

HOW TO RAISE COMB HONEY.

Price 5c. You need this pamphlet, and my free bee and supply circular. 18tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

SURE TO SEND

FOR MY NEW

PRICE LIST FOR 1886,

Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb

A. B. HOWE, Council Bluffs, Ia.

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CONVENTION NOTICES.

Nebraska bee-keepers will meet for their next annual session in Lincoln, Neb., on the second Wednesday in Jan., 1887.

H. N. PATTERSON, Sec.

The Bee-keepers' Association of Hamilton and Tipton Counties, Indiana, will be held at Westfield, Saturday, Nov. 6, 1886. All interested in bee-keeping are invited to come. Bring your baskets well filled, and stay all day, and help make this one of the most interesting sessions the Association ever held.

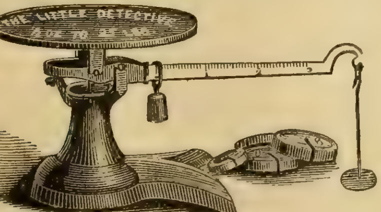
ILLINOIS CENTRAL BEE-KEEPERS.

In consideration of the meeting at Quincy, Ill., on the 19th, 20th, and 21st of Oct., at the laying of the corner-stone of the Soldiers' Home, the Executive Committee of the Illinois Central Bee Keepers' Society have postponed the yearly meeting at Mt. Sterling, Ill., from Oct. 19th and 20th, to Nov. 24th and 25th. The prospects for a grand success are certainly good, as many active and prominent apiarists and specialists have signified their intention to be present. The meeting will be held at the Court-House, and hotel accommodations are good. We are negotiating with the landlord for rates at the City Hotel, which we think will not exceed $1 00 per day.

J. M. HAMBAUGH, Sec

CARNIOLAN
QUEENS & BEES A SPECIALTY.
Send for Descriptive Price List and Circular.
9tfd **H. F. SHANNON, Clarksburg,**
(Formerly of Spring Hill.) **Decatur Co., Ind.**

Headquarters in the South.
FACTORY OF BEE-HIVES, ETC.
EARLY NUCLEI, ITALIAN QUEENS.
17tfd **P. L. VIALLON, Bayou Goula, La.**



"Little ✦ Detective"
SCALE FOR $2.00.

This is the same scale that we have sold for years at $2.50. It weighs from ¼ oz. to 25 lbs., and does it so accurately that they are used largely by postmasters in weighing letters. What can be handier for weighing out small lots of honey than one of these? They weigh 10 lbs., boxed ready to ship, and we can sell them for $2.00; with a tin scoop, 50 cts. more; with double beam, $3.00; tin scoop added, 50 cts. more. If sent alone, they will probably go cheaper by express.

A. I. ROOT, Medina, O.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable. Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Columbia Co., Pa.	1tf
*Paul L. Viallon, Bayou Goula, La.	19tfd
*S. F. Newman, Norwalk, Huron Co., O.	19tfd
*D. G. Edmiston, Adrian, Len. Co., Mich.	19tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala.	19tfd
*E. Kretchmer, Coburg, Mont. Co., Iowa.	19tfd
*Jos. Byrne, Ward's Creek, East Baton Rouge Par., La.	19tfd
J. W. Winder, Carrollton, Jeff. Par., New Orleans, La.	3tfd
*E. Burke, Vincennes, Knox Co., Ind.	3-1
C. C. Vaughn, Columbia, Tenn.	15tfd
Bloomington, Ill.	15tfd
J. B. Hains, Bedford, Cuyahoga Co., O.	15tfd

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
P. L. Viallon, Bayou Goula, Iberville Par., La.	15tfd
C. W. Costellow, Waterboro, York Co., Me.	1-23
R. B. Leahy, Higginsville, Laf. Co., Mo.	15tfd
E. Kretchmer, Coburg, Montgomery Co., Ia.	15tfd
C. P. Bish, Petrolia, Pa.	19-23

HOW TO WINTER BEES.

Essays by James Heddon, Prof. Cook, G. M. Doolittle, A. E. Manum, G. W. Demaree, J. E. Pond, Jr., J. H. Martin, C. W. Dayton, and P. R. Russell, all appear in the October number of the American Apiculturist. Send 10c in stamps for a copy.
Address AMERICAN APICULTURIST,
21tf Wenham, Mass.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

FOR SALE!

350 acres good table land, ½ cleared and in a good state of cultivation; the rest tolerably well timbered; finely situated for stock, fruit, or grain farming; an abundance of fruit and good spring water; good house with 9 rooms, garret and cellar, a large barn, and other necessary buildings. Price $7000.

Also 500 acres adjoining the above, 50 acres cleared, a log house and stable, some fruit, 200 acres of mountain land; the rest nice for farming. Price $3000. Either farm will divide well, and is a good site for an apiary. For particulars address
17-21d H. J. STREBY, Paw Paw, W. Va.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The market is good for all grades, and sales are large, receipts are very good, and prices are steady with a firm feeling.

White clover, 1-lb. sections - - - -	13@14
" " 2-lb. " - - - -	11@12
" " ½-lb. " - - - -	14@15
Dark 1-lb. " - - - -	10@12
" 2-lb. " - - - -	9@10
California, 2-lb. " - - - -	9@11
Extracted, white clover - - - -	6@7
" dark - - - - -	4@5
" white sage, California - -	5½
" amber " - - -	5
Beeswax, - - - - - - -	20@22

Oct. 23, 1886. CLEMONS, CLOON & CO.,
Cor. 4th and Walnut St's, Kansas City, Mo.

BOSTON.—*Honey.*—Honey is selling well, but would sell better if weather were colder. No change in prices. BLAKE & RIPLEY,
Oct. 22, 1886. 57 Chatham St., Boston, Mass.

MILWAUKEE.—*Honey.*—The market here is firm on choice quality of comb honey in sections, also on extracted. Choice white 1-lb. sections, 12½@13; choice white in 2-lb. sections, 12@12½. Dark, not wanted. Extracted in bbls. or ½-bbls., choice, 6½@7; extracted in tin, 7@7½; dark, in bbls. and ½bbls., 5@5½. *Beeswax*, nominal, 25c. A. V. BISHOP.
Oct. 22, 1886. 142 W. Water St., Milwaukee, Wis.

NEW YORK.—*Honey.*—There is a first-class demand for comb honey, especially for the finer grades. We are almost daily receiving shipments of various discriptions and quality. We make no change in our quotations. We have no demand whatever for extracted buckwheat honey owing to the fact that California extracted white and amber honey is selling at very low figures.
Oct. 22, 1886. THURBER, WHYLAND & CO.,
Read and Hudson Sts., New York.

CINCINNATI.—*Honey.*—There is no change in the market, worthy of note. A fair trade is done in comb honey, and small packages of extracted honey for table use, while the demand is slow from manufacturers. No change in quotations. Extracted honey brings 3½@7c on arrival, and 12@15c is paid for nice comb honey in a jobbing way. There is a good demand for *beeswax*. We pay 22c per lb. for good yellow. CHAS. F. MUTH & SON,
Oct. 21, 1886. Cincinnati, Ohio.

CLEVELAND.—*Honey.*—The market has not improved in the past few weeks; sales are very slow at 13@15c for best 1-lb. sections of white; other grades almost unsalable at any price. Extracted dull at 6 cts. *Beeswax*, scarce at 25c.
Oct. 20, 1886. A. C. KENDEL,
115 Ontario St., Cleveland, O.

ST. LOUIS.—*Honey.*—We note a better demand for choice white-clover honey in 1-lb. sections. It sold readily to-day at 13@14c. Good honey, Spanish needle, etc., 12@12½ in 1-lb. sections. Extracted and strained honey, no change. California holds us down. We are offering white sage at 5c, and amber at 4c in cans, by carload lots.
WESTCOTT & HALL,
Oct. 22, 1886. 108 and 110 Market Street.

FOR SALE.—White clover and basswood honey. Extracted, at 7c in barrels holding about 370 lbs. each, on cars here, and no charge for the barrels. In 5 and 10 barrel lots, will pay freight to any place under 300 miles. Also several barrels of a darker grade that we will sell at 6c. Our honey is thick and nice. E. FRANCE & SON, Platteville, Wis.

FOR SALE.—5000 lbs. of extracted white clover and basswood honey, in oak iron-bound barrels, holding about 370 lbs. each, delivered on board of cars. Price 7c. Also a few barrels of dark at 6c. No charge for the barrels.
PHILIP H. FELLOWS, Brodhead, Wis.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

ATTENTION!
Dealers and Manufacturers
We are prepared to supply you with sections for the coming season at bed-rock prices. Write us.
21tfdb G. B. LEWIS & CO.,
WATERTOWN, WIS.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

40-Horse-Power Engine for Sale.
Our new automatic cut-off 90 horse-power engine is now driving the machinery in all our buildings. Now, we want to dispose of our old 40 horse-power engine which has done such faithful work for us for the last eight years. It is a standard plain engine, Lord & Bowler make, 12x20, with a 9-foot balance-wheel and a 6-foot fly-wheel. We will offer it, put in good repairs, for $350.00. We will throw in the stone upon which the bed-plate is bolted, free of charge. For further particulars, write us. Whom shall we hear from first?
A. I. ROOT, Medina, Ohio.

Recent Additions to the Counter Store.
THREE-CENT COUNTER.
1 | SAFETY PINS, per doz., 1 inch long, and little beauties........................ | 28 | 2 50
FIVE-CENT COUNTER.
1 | MARKING-CRAYONS. BLACK, RED, or BLUE, | 40 | 3 50
Four inches long. These are invaluable for marking packages; and for bee-keepers it is just the thing for marking your hives. You can rub the marks from a painted or glazed surface but not from a rough one.
1 | NEEDLES, either SHARPS or BETWEENS. | 30 | 2 50
Any of the following numbers, 1, 2, 3, 4, 5, 6, 7, 1-6, 4-8, 3-9, or 3-10; 25 helix needles, cloth-stuck, in a paper; 3 papers for a dime.
3 | POCKET-MIRROR, zinc, 3 in. diameter .... | 40 | 3 50
The cover is so arranged that it can be hinged back as a stand for the mirror.
1 | SAFETY PINS, per doz., 1¾ in. long.... | 35 | 3 00
Same as the 3c ones, but larger.
13 | KNIFE-TRAY, 7x12........................ | 90 | 8 50
A beautiful ash tray with 2 compartments and a walnut handle. It is glued and nailed, is very neat, strong, and useful.
A. I. ROOT, Medina, Ohio.

KIND WORDS FROM OUR CUSTOMERS.

Inclosed find $1.00, for which please send GLEANINGS. It is like doing without tobacco to do without GLEANINGS. ALLEN BRYAN.
New Sharon, Ia., Sept. 30, 1886.

The goods shipped by you on the 9th came to hand all right. I am delighted with the wheelbarrow. It is a "daisy," and no mistake. I tell you, it astonishes the natives. S. A. STRIKER.
Manchester, Va., Sept. 30, 1886.

Goods arrived. Every thing is satisfactory, especially the lawn-mower. I could not have bought one of that size here for less than $10.00. It works very well. J. A. GREEN.
Dayton, La Salle Co., Ill.

A SCHOOLTEACHER'S OPINION OF GLEANINGS.

I am glad, indeed, that you are in the supply-business, for I am certain that, in no other way, could you afford to give so much reading-matter for a dollar. I have been a printer, and know about what so much matter costs. May success continue with you. I wish to express my sympathy, too, for your troubles with foul brood. May it never return to your apiary, is undoubtedly the earnest wish of your 6000 readers. With a school of 400 scholars to look after, I still find time to manage my little apiary of 26 colonies. Z. T. HAWK.
Denison, Ia., Oct. 15, 1886.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XIV. NOV. 1, 1886. No. 21.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

Established in 1873.

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A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18c per year extra. To all countries NOT of the U. P. U., 42c per year extra.

NORTH-AMERICAN CONVENTION.

A Few "Pointers."

RENDERING BEESWAX.

MANY persons spoil wax by melting it in dirty iron kettles; also by overheating it, or, when using steam, by admitting the steam into direct contact with the wax. Wax may be rendered in an ordinary boiler upon a stove, by using plenty of water. A sack of wire cloth sunk in the boiler will enable any one to dip the melted wax from the inside of the sack in a tolerably fair state of purity. The solar wax-extractor is destined to take the place of other wax-extractors. There is no expense for fuel, the wax is of superior quality, and the honey in cappings is saved. A small solar wax-extractor is preferable to a large one. It should be of such size that the wax placed in it will all melt in a day. The dish containing the melted wax that has run from the extractor ought to stand in the sun, in order that the wax may remain in a melted state, allowing the impurities to settle. The heat of the sun is never sufficient to injure the wax, but the honey has a flavor of pollen.

SEPARATORS.

Mr. N. N. Betsinger, of New York, has, for four years, been using wire cloth for separators. The mesh is four to the inch, and the cloth is dipped in molten metal, which fixes the wires solidly in their places. The bees can pass very freely, while the wire acts perfectly as a separator. Mr. B. uses a case for holding the sections in such a position that the separators remain a bee-space from the sides of the sections. Mr. Betsinger has patented his invention.

FOUL BROOD.

This subject was quite largely discussed. Good evidence was introduced, showing that the disease may be spread by means of honey. It was also thought that many people did not correctly interpret the published descriptions of foul brood. The descriptions given are applicable to the advanced stages of the disease; but when it first starts, only a few diseased cells will be seen, and there will be no noticeable odor unless the nose is brought near the foul brood. When a larva is diseased, its color changes to that of coffee with milk in it, and it will stretch out (if a pin be thrust into it and an attempt made to remove the larva) to the length of an inch. It finally assumes a darker hue, shrinks and dries up, and remains upon the lower side of the cell, where it resembles a speck of tar. Several had cured foul brood by the starvation plan.

HONEY-PLANTS.

The advice at present is to raise such plants for honey as will yield something besides honey. For this purpose, alsike clover stands at the head; next comes buckwheat, then rape and raspberries. The most promising plants to raise for honey alone are sweet clover, figwort, spider plant, and the so-called Chapman honey-plant. The latter is a biennial, resembling a thistle. The seed is sown in the spring, and, after the plant is fully established, it requires no further attention. It yields honey in very large quantities, has a fibrous stalk that some one thought might be utilized in making straw paper, and 2½ lbs. of ground seed has furnished 9 ounces of fine clear oil.

DRONES AND DRONE-COMB.

Drones serve no purpose except the fecundation of queens, and bees build drone-comb only when they wish to rear drones for the fertilization of queens, or are building combs for storing honey during a good honey-flow. The majority of those who had tried hiving swarms upon empty frames did not favor the practice; they did not secure so much honey, but *did* secure too much drone-comb. A few had succeeded to their entire satisfaction.

Rogersville, Mich. W. Z. HUTCHINSON, Sec.

QUEENS' VOICES.

CALLING IN THE CELLS.

IN Oct. 1st No., page 778, E. S. Miner takes issue with me in regard to queens calling while in the cell. Prof. A. J. Cook said, some years ago, that, when the first young queen hatches, if the *bees* intend to send out a second swarm we hear this peculiar note of the queen, and she is *answered by the other queens still in the cells* (italics mine).

I have heard them calling when I knew there was no queen in the hive outside of a cell, and when the cell-cap was not cut loose so the queen could push her head out, as suggested by Bro. Root. I cut a queen-cell out of a hive where five or six were calling, and heard the young queen call in the cell while I held it on my knife, and the cap was not cut partly off. I laid the cell down to take out some frames, and in about five minutes she came out. I cut out all but one cell, and at night the queen had quit calling, but still the bees swarmed next day, leaving the old colony queenless. I used the cells and queen that hatched, to form nuclei. I ask Bro. Root to say whether young queens ever call in the queen-nursery. I never used one. Why does the first young queen begin to call before leaving the cell, *only* when the bees intend to swarm, if not because she is kept in by the bees? When one calls, the others answer. At other times the oldest queen hatches, and the other cells are destroyed without any quarreling among the queens.

I ask Bro. Miner to examine carefully a cricket, grasshopper, or other insect that makes a similar noise, and he will find it is made by the covering of the wings, provided with a special apparatus for that purpose. And no insect that I know of makes a similar sound with the true wings, or without this special provision. The worker-bees make several variations of a buzzing, or humming sound, with their wings; but it is very different from this piping of the queen. There is no way of proving positively that the queens do this calling, because kept in by the bees; but it is a fair inference, when at such times the queen will stay in the cell until old enough to fly, unless taken out of the hive, when she will come out at once, and at other times come out without calling, looking like a worker just hatched, and unable to fly. This is my conclusion after three years' investigation to find the cause. 9—JOHN C. GILLILAND, 15—25.

Bloomfield, Ind., Oct., 1886.

Friend G., I can not remember that I ever heard a queen call while in a cell in the nursery. I am glad you suggest the matter, for I do not remember to have ever thought of it before. I should like to hear from friend Hayhurst and others who have used the nursery a good many years.

CALIFORNIA.

BEES IN AN OLD DUNGEON.

YOU may remember me as a former resident of El Dara, Ill., and, while there, a bee-keeper. I came to this country a year ago this fall, partly for health, and also to escape the hard winters. I find it a delightful change, and an improvement in both health and climate. I intended to go into the bee-business here, but instead I have been buying and selling. This is the most wonderful country for bees I ever saw. They never winter-kill; spring dwindling is unknown. Bees work the year round. Honey is very cheap. I got the finest extracted I ever saw, almost transparent, and of good body, for 3 cts. per lb., and retailed it for five; beautiful comb honey in 2-lb. sections, at 6 cts. per lb., and sold it for 8 and 10 cts. My zeal for handling bees has rather oozed out since finding honey so low and abundant.

Wild bees can be found among the rocks and in caves in the canyons here, some having been there for years, with immense quantities of honey. And, by the way, I want to mention one little fact that is wonderful. I went out with a party the other day to the old Jesuit Mission, about 4 miles from here. It's an old adobe and brick structure, over 100 years old. The main building, bull-pens, arches, and wings, cover several acres, or did. Much is in ruin now. Well, in one wing, running out from the main building, there has evidently been a dungeon; but above this room there seems to be space for another room, though I could find no entrance, nor any sign of there ever having been; but there are three different sides where bees are passing out and in; two entrances are very strong. The air seemed to be full of bees, and they keep up such a roaring you can hear them for rods away. In looking over this old pile, viewing its rude but grand architecture, its ornamental work, images, etc., now fast crumbling away, I was filled with wonder and delight; but when I came to the department of bees I was moved within me as *never* before. There must be within that wall quite a large room. The guide tells of their having bees there for 20 years.

Now, Bro. Root, come out and visit this wonderful State. We will go up to the old Mission, get permission from the authorities, dig a hole into that wall, and just take out that honey, bees and all. You can load a car and take it right home.

GLEANINGS comes, a welcome visitor. I like to keep watch of the progress made by our old friends in managing bees. Extracted honey here is put up in square tin cans holding 5 gallons each, and two cans in a case, the two just sliding in nicely; then they are nailed up.

The weather here by the coast is wonderfully cool — mercury standing at about 80, sometimes dropping to 70. T. C. BUNKER.

Oceanside, Cal.

Well done, old friend; but why don't you dig a hole into that unexplored room, without waiting for me to come and help? I think my brother at San Diego will be the man for the undertaking. He is always ready for adventures. But I can not understand how it is possible that this room should have remained all these years without being explored. It seems to me something like the age of the world when people lived so many centuries on one side of a vast ocean, without enterprise enough to get across and see what was on the other side. No disrespect intended to you, friend B.

SELLING THINGS BY WEIGHT INSTEAD OF BY THE BUSHEL.

W. J. Green, of the Experimental College (Columbus, O.), Gives us some Valuable Facts in the Matter.

ALSO SOMETHING ABOUT RAISING STRAWBERRIES IN THE FALL.

NEARLY all vegetables and fruits vary greatly in weight at different times of the year. The size of individual specimens that make up a given bulk affects the weight considerably. There is also much more difference in varieties than is commonly supposed. A bushel of "Peck's Pleasant" apples weighs about 55 lbs.; but the same bulk of some sorts weighs not more than 45 lbs. Peerless potatoes weigh more than most other sorts. White onions are usually not so heavy as red or yellow.

I give you below the legal weight per bushel of vegetables, fruits, etc.

Irish potatoes, -	60 lbs.	Onions, -	50 lbs.
Sweet "	50 "	Tomatoes,	56 "
Beans, shelled,	60 "	Turnips,	60 "
Peas, "	60 "	Apples,	48 "
Dried apples,	22 "	Peaches,	48 "
" peaches,	33 "		

A bushel, as applied to fruits and vegetables, is a very indefinite quantity, and ought to be abandoned as a standard. There is no possibility of settling upon a given bulk or weight for a bushel that will be satisfactory and fair at all times. If we agree upon the weight of a bushel, and establish it by law, as has been done, then there will be a variation of from 5 to 20 per cent in the cubic contents. If the other course were taken, and we agree upon the cubic contents of a bushel, then there will be the same variation in the weight.

The best thing that our legislators could do for us in this matter would be to repeal the law, and thus leave us without a legal bushel for fruits and vegetables. We should then take the only course left, and sell by weight. This would do away with "false bottoms" and many other easy ways of cheating. If it did not make people honest, it would at least make dishonesty more difficult. The only class that are now benefited by the legalized bushel are the dealers. They buy by weight when they find it to their advantage to do so, and it often is, but to the great disadvantage of the grower. These same dealers retail, not by weight, but by measure, which often gives them a fine profit, even at the same price per bushel at which they buy. The consumer might, of course, demand a legal bushel, but he seldom does so. In cities, a large share of the fruits and vegetables are sold by hucksters, and nothing better for their purpose could possibly be invented than the bushel measure and its fractional parts. They can make a bushel and a half out of 60 lbs. of potatoes, without the least difficulty, and with little fear of detection.

STRAWBERRIES IN THE FALL.

The strawberries that you saw in Indianapolis were probably grown near that city, although they might have come from New York, or, more likely, from Tennessee or some other part of the South, where it is not uncommon to grow a second crop. We have here at Columbus a small second crop almost every year, of some varieties. Occasionally the product is sufficient to pay for picking and marketing; at least, such a thing has been done near here. The Cumberland Triumph is the variety for the purpose, as it is almost the only one that gives us any quantity of fruit in the fall. The essential condition to produce a second crop is, that the plants shall have almost a complete rest after fruiting, for a month or more, and then be brought into vigorous growth. When a drought occurs during July or August, succeeded by a warm wet September, we may expect plenty of Cumberlands in September or October

If you do not wish to trust to nature to give you a second crop you may get one in a small way by artificial means. If you should force any strawberry-plants in the greenhouse for early berries you can use those same plants for a fall crop by simply keeping them dry for a few weeks during the summer, and then force them into growth again. Doubtless other ways might be devised to accomplish the same ends, but I will trust you, Mr. Root, to find out ways and means, if you *want the berries*.

Columbus, O. W. J. GREEN.

Friend G., I am very much obliged indeed for the facts furnished. I notice that the matter has been pondered by wiser and more experienced heads than my own; but I do think we should do every thing in our power to have our weights and measures so they will discourage attempts at fraud. I hope it is not true that all hucksters are as unprincipled as you mention, but I very well know that many of them are. It seems to me the adoption of weights, instead of bushels, will be a very great advance, and I do wish it were possible to adopt the decimal system of weights and measures, when we once get about it. When I adopted the plan of selling celery by the pound, I supposed we had got at something definite, so as to make it fair for all parties; but during a drought our White Plume became so destitute of sap that it took a great deal more in bulk to make a pound than it did of the Golden Dwarf and some other varieties. I also found that dipping it in water not only improved its appearance when it was a little inclined to wilt, but that the adhering water added much to its weight. In fact, we told a purchaser who had bought quite a lot, we would cheerfully wash it all for him for nothing if he preferred. He caught at the idea at once, and said he preferred the "unwashed." This same thing holds true of lettuce and a great many other things. I do not see any real substantial remedy except the golden rule.—I know there are occasionally a few berries in the fall, but those that I saw at Indianapolis were extremely large; in fact, they were larger than berries often seen on the market in regular strawberry time. Had it not been for their great size they would hardly have sold at 50 cents a quart, when fine peaches and other fruits could be had at moderate prices. One thing that struck me in their appearance was their light color. They were large, and of pretty fair shape, but very light colored for strawberries.

ARTIFICIAL PASTURAGE.

SCATTERING SEED BY THE WAYSIDE.

I WAS very deeply interested in the bee-pasturage question of Mrs. Chaddock's, especially alsike clover, in GLEANINGS for Oct. 15th, and I had decided to give my views upon the questions taken up in her article (not the latter part, of course). The question of bee-pasturage may be taken up in a practical and an impractical manner; and it is perhaps oftener the latter than the former. I will give my views, based largely upon practical experience and observation, and a little on theory.

It will not pay to cultivate plants for honey alone —that is, to take land fit for cultivation and sow or plant it with honey-producing plants which are of no other value. But if we can cultivate plants, etc., the flowers of which will produce honey, and at the same time you can secure from them an otherwise fairly remunerative crop, then you are all right. Or if you can scatter honey-plant seeds in places where they do not take up space which otherwise would be under cultivation, I consider such an investment remunerative. We should always, however, be very careful as to what we sow, that it be not a plant which will become a noxious weed. For instance, I could never permit myself to scatter one seed of "Viper's bugloss" (*Echium vulgare*); it is a pest in some parts of Ontario, where a few years ago it was almost unknown, and still a growing one, and no conscientious or right thinking man should scatter another seed of it until he finds out what its nature is. As to the Chapman honey-plant, I have seen it in bloom, have questioned closely Mr. Goldie, of Guelph, who had 50 plants on his grounds to experiment with, and who is an able botanist. Mr. Goldie stated that the plant is a biennial, does not increase from the root, is extremely hardy (*extremely hardy*, mark you), and, in his estimation, might easily prove to be a noxious weed. Now, are we justified in assisting to spread a plant broadcast over America which may prove to be another pest to those who cultivate the soil? If we assist and countenance actions which at least are a risk to our neighbors, have we a right to expect the fellowship and good feeling of such from a natural standpoint? No. We are a help and a profit to the horticulturist and agriculturist; do not let us run the risk of more than counterbalancing the benefit we confer.

Then we can profitably strive to have our neighbors, citizens, etc., plant such trees as we know are productive of honey. Much can be done in this direction, at a very small outlay. The linden, soft and hard maple, and, in places, willow, are excellent and beautiful shade-trees. And then we must be guarded in not overestimating the benefits derived from a flower. We stroll about after linden-bloom, and possibly near frost, and see bees working constantly upon sweet clover; are their frequent and continuous visits an indication of the quantity of honey obtained? By no means; it may simply be, and, I believe, frequently is, only an indication that there is *a little* honey there. There are no other honey-producing flowers about, and the bee, unlike some individuals when out of work, thinks half a loaf—yes, far less—is better than no loaf at all. Of course, a careful, observing, and experienced bee-keeper can readily see if such be the case or not.

Next, as to clover, and Mrs. Chaddock's argument, that alsike clover would not pay, as there is more honey in white than the bees can gather, I find that bees never touch the white after the alsike is in bloom. They commence blooming within a few days of one another. Bees will, in fact, leave white in the more immediate vicinity, and take alsike. As a honey-plant, my observations of five years prove to me that, during that time, it has not failed to secrete nectar which is slightly superior to the average white-clover honey. We all know white does fail. As to a remunerative hay and seed crop for the farm, it is decidedly that, and very much on the increase through our part and the most of Ontario. You, as a bee-keeper, can make no mistake by encouraging its cultivation, praising it, and giving away seed, to induce its cultivation. As a farmer, you can make no mistake if the soil is at all adapted to it—an inclination to a low soil, or, at least, not high, and not too light. As to buckwheat, it fails here at times. I do not think it would pay to cultivate it apart from its utility in plowing under for a crop of wheat. R. F. HOLTERMANN.

Brantford, Canada.

Friend H., there are extremes in both ways in this matter of troublesome weeds. Even buckwheat is an extremely troublesome weed if the seed is allowed to scatter itself; and it will come up year after year where a crop has been raised, and the seed allowed to shell. Friend Chapman is an experienced market-gardener, and knows all about weeds, about as well as any of us, and I think we can safely abide by his statements.

PERFORATED ZINC.

THE SIZE OF OUR PERFORATIONS JUST RIGHT; NO QUEEN CAN GET THROUGH.

I AM getting well started in the hive and queen-bee trade, and am doing better than I had reason to expect. My hive takes well, though some find fault with it. I am transferring and Italianizing every day. Your perforated zinc is exactly right. I would not have it changed a fraction. I believe it will hold the smallest queen, as I have daily trials of it in my swarming-box. I spend no time hunting queens. I rush all into the swarming-box, then draw the slide over the perforated side, and Bingham's "Doctor" soon empties the box of all except the queen and drones.

Some one said, in your journal, "Leave the old queen *in* till the new queen is ready to liberate." I tried it, at a loss of two queens—the first I ever lost in my life in introducing. Now I fall on the old way, and take out one when I put in the other.

Sealy, Texas, Oct. 19, 1886. J. L. DEWEY.

The results of your experiments with our make of zinc confirm exactly the results we arrived at as recorded on page 424, May 15th issue. We were very particular to have our machinist make the dies of just such a size as are the perforations of the zinc we send out. In the new edition of the A B C book now in preparation, we have carefully considered the proper size of perforation to be both drone and queen excluding, and yet permit the easy passage of workers. Your method of finding the queen by means of the zinc is good, and I should think it would answer an excellent purpose when it is desired to get a black queen out of a colony. We like the Peet process of introducing queens. By it we can take out one queen from a colony, and replace her by another at the same operation. The Peet process very rarely fails with us when the cage is properly fastened to the comb; and Neighbor H. says he can not remember that it *ever* failed with him.

PACKING BEES IN LONG BOXES FOR WINTER.

FEEDING, ETC.

MY father purchased a swarm of bees about five years ago, and three years later he gave me a swarm. We sell no bees, but keep them for their honey. We generally winter from 15 to 20. Some winters are unfavorable for bees—the winter of 1884, for example. Last winter we did not lose a single swarm. I will give you a brief description of the way I manage mine in winter. When cold weather sets in for earnest, I take the bees from their summer stands and place them in long boxes which will hold about five swarms each, placing the hives far enough apart in the boxes to pack dry straw and chaff around them, constructing a passage by means of two cleats nailed to a board, and placed at the mouth of the hive. This allows the bees to pass back and forth whenever the weather is suitable, and you think best. I always select a dry place, and have the boxes at least 30 inches from the ground. If it is where winter is severe, it is well to place a few cornstalks about them, as this protects them from piercing winds and frost. To make sure that they have enough honey, I lay two or three small sticks across the brood-frames, and place a card of honey upon them. This allows them to pass over the frames; and if they are short of honey they will have this card to fall back on. If there happen to be a bright sunshiny day during winter, it is well to let them take a fly; and then is a good time to see if they have honey enough to last them till spring. By the way, I generally change the cloth which is in the surplus-chamber, and give them a dry one, as the other will be frozen if there is any moisture to freeze. They are always damp or musty, and it is a good plan to give them an airing. If I don't have honey to feed them I make a thick syrup and turn it into some empty comb and place it over, just the same as I would the honey. When spring comes I place the hives back on their summer stands, and give them a clean bottom-board, as this saves the bees from carrying out the dead bees.

When it is time for them to begin hatching brood I give them some salt and water to work on, and also some stimulative substance, such as rye flour and oatmeal. I hardly ever make an artificial swarm. I always let them swarm naturally. If I want them to make honey instead of swarming, I look them over and kill all the queens but one; also give them more room to work in.

We use sections placed in a crate on top of the hive. This crate holds 24 1-lb. sections. A good strong swarm of bees will fill from two to three of these crates during the summer. Some do even better than that, but the average swarm fills about two.

ARTHUR W. JEWETT.

Mason, Mich.

KITES.

A LITTLE TALK TO THE JUVENILES.

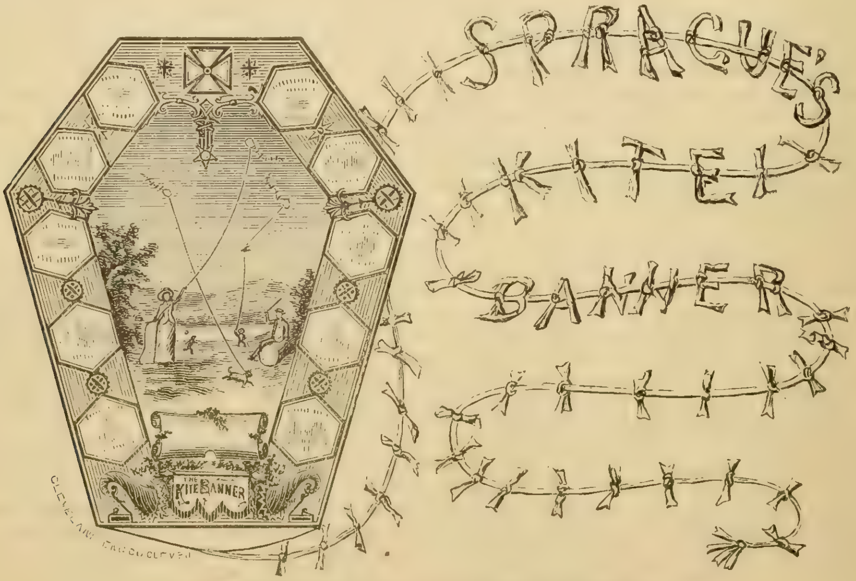
WHO has not enjoyed the sport of flying a kite? Did you never have a string broken, or have the kite come down in a tree-top, or across some building? Did you never get tired out in trying to make a kite fly, when there was not wind enough? and then some other day, don't you remember that the wind blew too hard and broke the string, or made the kite dive, in spite of various nondescript articles tied to its tail? Well, I have for many years wondered why somebody did not start to making kites by machinery—kites made of such carefully selected, light, strong, straight-grained wood that they would fly, almost without any wind. Sometimes I have threatened to start a kite-factory myself, but I never got around to it.

Only a few days ago some of the clerks said there was a man hunting for me, who had a patent kite. I found him, and we soon made a trade. They used to sell their patent kites for 25 cents; but when I spoke about buying a thousand, he got so excited about it he could not talk straight; but I bought the thousand kites, and paid him the money; and instead of selling them for 25 cents, I am going to sell them for an even *10 cents.* May be you would like to see what they are like. Well, over the leaf is a picture of the institution, tail and all.

This kite is made portable. The sticks that compose it can be folded up just as you would fold up a fan, and then they can be straightened out again. The paper is gummed around the edges, like an envelope, so all you have to do is to spread out the sticks, lick the edges of the paper, and paste it up, then hitch on the tail and string, according to the printed instructions, and there you are, all ready to fly it.

Yesterday there was a pretty good breeze, and so Huber and I started out to try one of the new kites. It shot right up out of my hands, and Huber just laughed and danced, and bubbled over with enjoyment while I let out the string, so it could go away up high. He said it was surely going to run against the clouds. But what do you think it did do? Why, I was getting ready to let him hold it, and was giving him a great amount of caution about not letting the string slip through his fingers; and to make doubly sure, I told him I would tie it around his waist. He said he would not let it go, but I thought I would not trust him. Now, then, what do you suppose papa did? Why, *he* let it slip through *his* fingers; and instead of running against the clouds, it just toppled over and sailed away over across the railroad track, and the string got tangled in an engine. Well, papa got the kite down from off the building, untangled the string and straightened it out, and spent more than ten cents' worth of time in getting every thing all right. But I thought it was better to teach Huber to take care of property, even if it did sometimes take more time than it was worth, than to teach him another lesson by going into the counter store and getting a new one. Well, we took the string over to

Uncle Hen's and let Aunt Mate and Gladdis Maud (she is the six-months-old baby that has come to live with Uncle Hen's folks) see the kite. Then we took it over and showed it to mamma, and sent messengers up on the string. The messenger was just a little piece of paper with a hole through it. The end of the string is put through the hole, and the wind spins the paper clear up to the kite. Then we tied the kite-string to Huber's cart, and, sure enough, off started the cart as if it were alive, and trundled away just about as fast as Huber could run, like a thing of life. When the wind veered around, the cart would run off to one side of the road, and run into the ditch, and upset; and then you should have heard him laugh and "holler" as he pulled it out. He got so excited with the fun he was having that I began to think he had better put the kite away until some other day, and then a team came along and was going to run over the string, and then he was in about as much trouble as a child often gets into. Why, he cried as if that kite-string were worth a hundred dollars, when a whole ball of it costs only five cents at the counter store. I wonder if older people don't sometimes make a greater fuss about the loss of a small amount of property. Well, before that naughty team had run against the kite and pulled it down, mamma came and showed him that, by going backward, he could raise the string out of their way. Is not this another lesson to poor shortsighted, worrying humanity? Mamma wound the string up on a piece of stick, and the kite came down careening and nodding, and cutting up all sorts of antics, as if it were a playful kitten instead of a few bits of inanimate wood and paper and string.



OUR TEN-CENT KITE FOR THE JUVENILES.

Now, whenever you want to make the kite draw a cart, remember to stop the cart whenever the kite seems to be getting too low. If that does not bring it up, pull your wagon backward until it comes up to a good height again. Now it will draw the wagon a good way before it gets down. If the wind is strong and steady, however, the kite will pull a cart or wagon at a pretty good speed, and not come down at all. The worst trouble about it is, if you want your wagon to run on a traveled road the changing of the wind will pull it from one side to another. Perhaps a steering apparatus, such as they have on traction-engines, might fix this all right.

While we were having our fun with it, a man stopped and inquired how long before I was going to have a kite hitched to our market-wagon, so as to dispense with horses.

Well, we can send you a kite, all complete, in a pasteboard tube, for just 10 cts.; and if you want it by mail you will need to send 5 cts. more for postage. We can send them by freight or express, with other goods, for 10 cts. And this reminds me, that three more numbers of GLEANINGS will finish the year 1886. As is customary, we will send it the remainder of the year free to all those who remit now for 1887. And as we don't want to show any favors to *new* subscribers that we do not to old ones, we will send a kite to every old subscriber who sends us $1.00 for GLEANINGS for 1887, before Dec. 1, always remembering that, if you want a kite by mail, you must be sure to include 5 cts. to pay the postage. If *new* subscribers want a kite, they can get it by sending us one more subscription instead of their own. We can furnish the kites at wholesale, 25 in a box, including one sample, all finished and trimmed, ready for flight, for 8 cts. each, or an even $2.00 for the whole, box and all.

REPORT FROM O. M. BLANTON.

From 425 to 475, and 31,000 Lbs. of Honey.

HIS OPINIONS ON SOME OF THE NEW DEVELOPMENTS.

THE honey season just closed has never, since I have been in the business, been more discouraging. My entire crop is unsold, and, with the prospect of having to put it on the market at 3 to 3½ cents per pound, leads me to wish I had never engaged in bee-keeping on a large scale. I shall try it one more year before I determine to abandon my favorite pursuit.

The season just past has been by no means the best. With a very wet cold spring which retarded the secretion of nectar, and, in addition, a severe drought in the month of May, extending into the middle of June, caused but a moderate yield. July and August were far better, and from late corn and cow-peas the bees recovered much of their lost ground.

I closed my apiaries on the 5th of September, determined to leave my bees an abundance of winter stores, knowing that, as it was of but little value to me, it would be of great benefit to them. I commenced the season with 425 colonies, spring count, and closed with 475. My yield was 60 barrels, or about 31,000 pounds, of extracted honey, and 600 pounds of comb. This is about as poor a yield as I have had since being engaged in bee-keeping. I must admit, that if I could have been able to give my personal supervision to my apiaries, the yield would have been greater; but circumstances beyond my control prevented.

I have read, in the different journals, many causes for the low price of honey. There are three, beyond a doubt: Overproduction, general depression of trade, and adulteration. The two first, in time, will rectify themselves; but the great evil in the last-named cause will always, in my opinion, be a bar to the prosperity of the bee-keeper. The low price of glucose, and the new discovery of saccharine, will stretch "imitation honey" to an indefinite extent.

I have been engaged in bee-keeping for fourteen years, and look back with surprise at the many trials and losses I have sustained in my experiments with varieties of hives and apparatus. How few I now use! The Langstroth hive (although not the only good one) I adopt, and most of them of 20 frames and one story. I find them more convenient and rapid of manipulation, which is of great consideration when working for extracted honey. I never use more than one inch in width of comb foundation as a guide for the bees on the top-bars of the Langstroth frames, or the one and two pound sections. I have abandoned full sheets of foundation with wire. Honey-boards, bee-feeders, queen and drone excluders, I find of no practical benefit. As for moth-traps, I am astonished that any sensible bee-keeper would use them. Reversible hives and frames, I will leave others to thoroughly test their value before I use them.

A wax-extractor I would not have; for with the old process of melting in boiling water, especially when two or three *pure* rain waters are used, there will be very few impurities left; and more so, if the fire is removed from the vessel containing the melted max and allowed to cool *extremely slow in the water* in which it is melted. The impurities should be scraped from the bottom of the cold wax before being melted again in another *pure* water. Many things that I have discarded may be of value to other bee-keepers in their localities.

As for packages, I find of value for me, for the home market, one and two pound sections of comb honey; and for extracted, one and two pound glass jars and one-gallon tin cans.

For shipment, I have, after many experiments, found that cypress barrels, fresh from the cooper, and made to order, containing from 525 to 550 pounds net, and with 16 hoops, are only to be relied on. These are my convictions, after so many years of experience.

I hope a silver lining may yet appear on the clouds now threatening our future prosperity, and that we may be encouraged to continue in one of the most agreeable and healthful occupations for the lover of country pursuits. O. M. BLANTON.

Greenville, Miss., Oct. 12, 1886.

Friend B., I am sorry to see you getting "blue" over the prospect. I supposed the low price of honey had about put an end to adulteration. You speak of honey being 3 to 3½ cts. per lb.; but glucose is quoted in New York at 4½. Now, they might adulterate the glucose with honey, but they could not adulterate the honey with glucose, at the above prices. If you sell your honey, even as low as 5 cts. per lb., is it not at this price going to compete with cane sugar? Friend Dadant said, at the convention, that he was not frightened at the prospect of only 5 cts. per lb. for his honey in quantities. It is, indeed, true, that where one numbers his colonies by the hundreds, he soon feels obliged to dispense with many of the fixtures which the bee-keeper of a dozen colonies thinks a necessity. We do not want you to desert our ranks yet a while.

BEES AND GRAPES.

A REMEDY SUGGESTED THAT IS AT LEAST SOMETIMES PRACTICABLE.

IN your editorial notes on page 798 you mention the wonder of visitors that the bees do not eat your grapes. I have about thirty bearing vines in my apiary, and visitors often ask me the same question: "How is it that the bees do not eat the grapes?"

Some even suppose that the grapes are raised for food for the bees. They are apt to look surprised, perhaps a little incredulous, when I tell them that I have never yet seen a bee eating a grape, though this is perfectly true. The reason for this is, no doubt, that there is almost always honey to be gathered here at the time when grapes are ripe. Bees care nothing for grape-juice when they can get honey. The chickens often eat our grapes, and bruise and mangle them so that the bees are not hindered from sucking the juice if they felt so inclined; but here they never have the inclination. No doubt, though, there are places where bees attack and at least partially destroy grapes that have been injured by birds or other insects, or that have cracked on the vines from overripeness or other causes.

It is superfluous to tell a person who has investigated the subject carefully, that bees can not injure sound fruit; but it is useless to deny that bees can and do injure grapes or other fruit, the outer skin of which has been broken in any way. Is it not best for us to meet this fact squarely and honestly? Should we meet damaging truth, or even mistaken prejudice and misrepresentation, with subterfuge and evasion? Is it not our wisest and safest course to recognize the fact that bees may and do cause pecuniary loss to fruit-raisers? Let us admit all that is true, and then do all we can to remedy the evil.

Your position in regard to screens for cider-mills is well known. A little trouble and expense will prevent a great deal of trouble, loss, and bad feeling. Let us see how far we can apply this principle to the protection of fruit from bees.

As I said before, the chickens eat my grapes. To prevent this I have been obliged to protect them in a way I am surprised never to have seen mentioned in the bee-journals. This plan is to place a paper sack over each bunch of grapes. Those to whom the plan is new, may laugh at it; but it is nothing new to grape-raisers. Many, who raise grapes by the ton, sack all of their grapes and find it profitable to do so. The advantages are, that the sacks protect the grapes from birds and insects, prevent mildew and rot, produce firmer bunches, which can be picked and handled without breaking off the grapes or destroying the bloom, and also protect the grapes from frost.

The method of using is to pin a one or two pound paper sack over each bunch, pinning the mouth closely around the stem with a cheap pin or wire nail. I have never seen the last recommended, but I find that a ¾-inch wire nail is just as good as a pin, and cheaper. The sacks used are the ordinary manilla sacks, and cost about 80 cents per 1000. Before using, the bottom should be perforated, else the sack will catch and hold water. Sacks are now manufactured expressly for this purpose, and may prove to be cheaper and better adapted. The best time to put sacks on is when the grapes are small, say the size of No. 6 shot. It can readily be seen, that if grape-raisers would sack their grapes a large part of the trouble connected with "bees *vs.* grapes" would be avoided. I think that, in a majority of cases, the vineyardist would readily adopt this plan if it were properly brought to his notice, and he could be induced to try it once. In some cases the bee-keeper could better afford to furnish the sacks free than to have his bees destroy his neighbors' grapes.

While we should always be ready to protect our rights when assailed, we should remember that others have rights too, and "as much as lieth in us, live peaceably with all men."

Perhaps this is a little out of season; but coming to him who has had trouble with his bees destroying fruit, it will be more apt to prove impressive than at the time for putting it in action.

Dayton, Ill., Oct. 12, 1886. J. A. GREEN.

Friend G., we are very much obliged indeed for the suggestions you give us. I was aware that many growers of choice grapes have been for some time in the habit of bagging them, but it did not occur to me before that it forms a perfect and complete remedy for the trouble between bee-keepers and grape-growers. The only difficulty is the expense, and trouble of putting on the bags. The way our grapes grow—tied to a stake, a good many of the bunches are so intertwined with the leaves and twigs it will be difficult to get a bag over them at all. Perhaps the usual system of training on horizontal wires would allow a bunch to hang down so as to make it much more feasible.

I should be very glad indeed to get the address of the manufacturers of bags for bagging grapes.—In regard to wire nails being cheaper than common pins, I think we have a kind of pins on our three-cent counter that is even cheaper than wire nails. There are, on a three-cent paper, 280 pins. I think this is a matter of very great moment indeed, and it behooves us to do all in our power toward encouraging grape-growers to use bags. I have found out this season that the baskets of grapes go quicker when the bunch is entire and the bloom on the grape is perfect; but I find it pretty difficult to pick grapes rapidly and not break and tear the berries. From what you say, I am quite satisfied we should make money to have our grapes all grown in bags, unless, indeed, we except a few bunches not worth bagging, or some that are twined in the branches so a bag will not easily go over them.

BALLING QUEENS.

WHY DO BEES BALL QUEENS THAT HAVE BEEN SUCCESSFULLY INTRODUCED?

On page 784, Oct. 1, 1886, Mr. John H. Mullin asks for information on the question of bees balling queens, and says it is not queens that are being introduced. Your answer applies only to queens which the bees have not accepted. You say, "Bees ball queens for the simple reason that they do not wish to accept them, and by that means they propose to sting or smother them to death." This answer fails to meet the question, as I understand it. His question refers to queens that are fully accepted—those that may have been bred in the colony (balling them) and laying for one or twelve months. In the past four years I have lost some of my most valuable breeding queens, just in the same way that he mentions—their own workers balling them, and in some instances stinging them to death. They do not always smother queens to death; for when very angry they often sting the queen to death. I have seen a bee, among the first to attack a queen, pop his sting into her abdomen under the segment band, and kill her almost instantly, after which they would ball her for a time.

Among the number of queens that I have lost in the way that Mr. Mullin states, were queens that had been bred and laying for one year and more; in some instances, in the same colony in which they were balled and *killed*. I have even had them killed the past season in three L. frame nuclei, after laying for 10 or 12 days, by simply opening the hive when honey was coming in very slowly. It is to this cause I have always attributed the balling of queens by their own bees. They are more apt to do it in early spring or midsummer, when a dearth of honey happens, if disturbed by being opened up and smoked, than they are in the fall. I have never had it occur with me in fall or winter, and I have repeatedly opened my colonies and taken out frames of bees when they were clustered, and could not fly off the combs. You do not do that up north, friend

Root, do you? The only remedy for the evil I have found is not to open hives except when bees are gathering honey; for in a honey dearth, any bees are likely to ball and kill their queens, if disturbed much at such times, unless in fall or winter, and then they are not apt to do it.

QUEENS REARED UNDER THE SWARMING IMPULSE —ARE THEY PREFERABLE?

Such is the heading of Mr. J. Eastburn's letter, page 786, Oct. 1, 1886. If I wanted more increase by *natural* swarming out, from queens which are not any more prolific than others which are not bred under the swarming impulse, I would take those that are bred under the swarming impulse; but for work, and best qualities combined, I always choose queens bred after the natural swarming impulse of bees has passed off. My experience has been, that the latter class of queens are fully as prolific, though less inclined to swarm, than those bred under the swarming impulse.

I have queens in my apiaries to-day that are three years old, and never offered to lead out, or swarm during that time. They were bred under the non-swarming impulse. If we desire bees that won't swarm, we must get them by breeding queens out of the swarming season, and contriving to select the most non-swarming of these to breed our drones and queens from. I will define, in part, what I consider the term "swarming impulse" implies; or, rather, the sense in which I apply it. That is the season of the year and the time when bees are swarming naturally, by Nature's own impulses, when they mostly all have the swarming fever inbred. Cells built at that time, and by such bees, are built under the *natural* "swarming impulse." Those built out of that season, either with or without stimulative feeding (to get them built perfectly, *well fed*, and as near the quality of those built under Nature's own impulse and desires), are built and bred on the non-swarming impulse. Queens from such cells as are built where stimulative feeding is followed, till cells are completed, out of swarming season, are such as I always select. But be it remembered, I have them built in full colonies and from freshly laid eggs. When honey is coming in plentifully from natural sources, stimulative feeding to get cells built is not desirable.

4—ABBOT L. SWINSON, 66—74.

Goldsboro, N. C., Oct. 14, 1886.

Thanks, friend S., for your correction. Since you speak of it, I see that the "footnote" does not cover the whole question asked by friend M. I have noticed that queens have been balled even after they have been in the hive for a year or so. Opening a hive during a dearth of honey, or just after a honey-flow, sometimes causes the bees to ball their queen, as you say. Bees are also apt to ball their queen a day or so after she has been successfully introduced, when a novice has a curiosity to look in and "see if she is all right." This is one reason why we use and prefer the Peet cage. It is so constructed that the queen can be liberated by the bees without the usual disturbance, noise, and jar. That is, every thing progresses naturally.

The balling of queens is sometimes caused by placing the hives too near together, or by having them too nearly of the same appearance. In that case, enough bees will get into the wrong colony to pitch into the queen because she is a strange one to them. I think a great many losses have occurred in this way because the hives were exactly alike, and closer to each other than they ought to have been.

FLORIDA.

GLEANINGS ADAPTED TO ALL LATITUDES.

IT was three years ago to-day that I came to Florida. I like it, its climate suits me, and will suit any person who adapts his desires to it. This is the secret of making any location agreeable to you—content yourself. You can not bring Ohio, Indiana, or Kansas here. If you so desire, you had better stay where you are. I you have no object in coming to Florida but to make money, please stay where you are, for that is the best place for you; for if you are making money, and that is your chief desire, you will be worth more to Florida where you are; but if your health is delicate, and of a pulmonary nature, there is little doubt but that you might be benefited by the change, unless you are greatly prostrated. In that case, die among your friends; but never—no, never, break up your home and move to any country until you have first seen it, considered all of its advantages and disadvantages pertaining to you and your avocation, and studied well all you expected to gain by the change. If you do not do this you will almost certainly be disappointed, and will be an injury to the country you may chance to drift into. All I shall say in praise of Florida is, that there is a great future in store for it. Those who come here and adapt themselves to the country and its climate, and direct their energies in unison with the facilities of the country, will do well here. The man who has done well before coming to Florida will usually do so here. "Nothing succeeds so well as success."

GLEANINGS AND ITS CONTENTS.

GLEANINGS has been with me for three years here, and seven years in Indiana. It was a good guide while in my Indiana home. Its teachings were closely watched; for then all the theories of the "wintering problem," "spring dwindling," chaff hives, cellars, clamp, packings, Hill's device, and a thousand other things that were then applicable to my profession as a bee-keeper, are of but little interest now, more than to see the different troubles that follow bee-keeping. We have our troubles here as well, but not as yet so great as you have. We meet with no loss from wintering, if we use any care. Birds, mosquito-hawks, and ants, are our worst enemies. Robbing must be guarded against; and, as Ernest says, you must see to it yourself, for there is no great excellence without great labor.

The scientific and working principles of bee-keeping, as taught by the different authorities, are applicable to us in Florida as well as with you. This makes GLEANINGS very dear to us here. The Heads of Grain are closely winnowed, and much good seed has been garnered. The Tobacco Column has been chewed and smoked by the lovers of the weed, and many "smokers" changed hands.

The Reports Encouraging and Discouraging show the ups and downs of life as returned by the different members of your family of bee-keepers. Those discouraged, they bid "Hold the fort;" and those who rejoice in their prosperity, they bid be charitable, and give as it is given unto you. "Notes and Queries," and your replies, have been closely scrutinized. Humbugs and Swindles have been exposed, and no reader of GLEANINGS need lose by them. Our Own Apiary has been closely watched, and from its management have been gathered many lessons of profit. "What to Do, and How to be Happy While Doing It," gives us in Florida more interesting reading than "How to Winter Our Bees" does. How to grow good vegetables is now to us a question of very great importance; for on that, to a great measure, depends the prosperity of Florida. Myself and My Neighbors—we are all neighbors, and I did hope that I could meet them at the convention this week in my native State, at Indianapolis, but I can not. This brings me to Our Homes. "God Bless Our Homes!" should be over every man's door, and should be engraved on every man's heart; but, alas! the "Blasted Hopes" that are in many blasted homes, caused by intemperance. May God so open the eyes of every praying Christian in this land, so that he may see to vote as he prays, that the *cause* of the curse may be removed from our land. "Woe unto them that are mighty to drink wine, and men of strength to mingle strong drink; which justify the wicked for a reward, and take away the righteousness of the righteous from him."—ISA. 5: 22, 23. JOHN CRAYCRAFT.

Altoona, Orange Co., Florida.

I am sure, friend C., we are very much obliged to you for your kind and encouraging words; and we can say amen most heartily to your closing text.

UPWARD HIVE VENTILATION.

CAN BEES WINTER IN HIVES ABSOLUTELY TIGHT ABOVE? ETC.

ALTHOUGH it has been stated so, yet I should be glad to know to a certainty whether a colony ever passed a confinement of 90 days on natural stores, and without a particle of upward ventilation to the hive, and came out undiseased. Less than a week ago I chanced to meet one of those cranks who always cling to nature's methods, and winters his bees with (supposed to be) tightly sealed brood-chambers. He said his method was the correct one, and that his success attested the truth. I began to feel elated at the prospects of learning something of this vexatious method of wintering. But, lo! it was found that his hives *did* have real upward ventilation, as, when they were inverted, water went out of them faster than it could be put in with a pint cup. Then and there his cherished old-fogy notion was shaken. It needs only a small amount of ventilation for a colony of bees. About such a circulation as would pass through 2 inches of loose chaff is sufficient in a temperature of 45°. If the temperature is above that point there should be less chaff, and a lower temperature would necessitate more chaff. A very few open cracks in a hive would provide that amount of ventilation, which would be likely to be a sufficiency. It seems to many, that a cluster of bees causes considerable warmth and circulation; but the fact is, in the case of a well-wintered colony, that there is as little draft as possible, and yet be worthy of the name of a draft.

One would be led to believe that a ½-inch hole above the cluster would admit sufficient draft to carry off the overplus of moisture. The amount of moisture generated by a cluster of bees is inconsiderable, with the outside temperature at 45°, as the average temperature at the center of a cluster is about 70°, which decreases until an inch outside of the cluster finds it at 55°. So little difference in temperature could not produce much circulation; and without circulation, moisture will not accumulate. Still, a certainty remains that there is and must be some draft which must condense its moisture either inside or outside of the hive. Many apiarists know, and all observing ones ought to know, that when a colony clusters in the top of the hives the lower parts of the combs become covered with mold or moisture. Sometimes the moisture is of sufficient quantity to run out at the entrance. This moisture never would have accumulated there had there not been gusts of air warmer than the outside air forced in that direction.

There is, it appears, a small amount of warm air thrown off from a cluster of hibernating bees. This warm air, if it can not proceed upward, will go downward. A comparatively large share of it penetrates the solid board composing the side and cover of the hive, but still there is room left for disposal. What we need to provide is an arrangement of the hive that shall allow the upward movement of this surplus warm air. I call it surplus, as that is what I consider all drafts that proceed in a downward course in the brood-chamber, and do not pour out at the entrance. I feel safe to say, that not one colony in 100, when they are in the quiet state, will produce enough heat to fill an ordinary hive and pour out at the entrance; so if I am right we might as well give up ventilation at the bottom of the hive. All the advantage there is in leaving the bottom-board off the hive is to let out the foul air (which always sinks), and thereby prevent molding of the combs; but mold does not hurt bees, as they never consume it or attempt to move it until a flight. What is needed is an amount of ventilation at the top of the hive that will cause all drafts of the hive to move in an upward direction. Then there will be a constant movement upward through the brood-chamber; and if condensation takes place it will be above the cluster; and if the cluster is situated just below some loose chaff or forest leaves, the moisture will be out of the reach of the bees. It is not the results of cold air coming in contact with warm air that condense moisture, but the coming of the warm air in contact with the cold. When cold air comes in at the bottom of the hive, and condensation does not take place until it goes out at the top, if the outside air is not already saturated its tendency would be to absorb rather than discharge moisture.

Some may be of the opinion, that the circulation about the cluster would continually force the condensed moisture beyond the reach of the bees. This is partly the case. The heat and circulation of the cluster of bees do render the combs dry for some distance around the cluster; but, as I intimated before, there is not enough of this circulation of air, nor the force to drive it to all parts of the brood-chamber; and a part, and often it is a very large part, of the combs that is occupied by moisture, sometimes extending up at the side of the cluster to the top-bars. Now, the presence of this moisture is nothing detrimental; but as time and days roll on, some of it, getting into honey-cells, ferments. In fact, I do not know but there is some other ingredient drawn in, or the pollen exerts some wonderful power, as it hardly seems possible for a mixture of honey and water to form so sour and sticky a mess as is often found.

From this foul accumulation proceeds an acrid fume which (unlike the gas spoken of before) rises to the top of the brood-chamber and there continues to accumulate, making the bees uneasy, and they begin to move about; some of them attempt to move the moisture, others sip sour honey; but generally the bees exercise violently, and consequently die of early old age. The last of the bees in the colony, finding it a hard matter to keep warm, are forced to activity, and the consumption of honey, which, taken on to a cold and disordered stomach, passes into the intestines and forms the watery and half-digested liquid that causes the distension of the bees, and soiling of the surroundings, in case of true bee-diarrhea.

Those who winter their bees with tightly sealed brood-chambers are often heard to complain that their bees got restless and uneasy from being too warm. My experience has verified that it is not the *warmth*, but it is the *fume* of the sour and fermenting mass below, rising and accumulating in the upper portions of the brood-chamber; and the removal of the solid cover at such a time would convince any person of the truth of my statement. C. W. DAYTON.

Bradford, Iowa.

PIPING OF QUEENS.

ALSO, CAN A QUEEN FLY AS SOON AS HATCHED?

I WAS very much astonished at Mr. E. S. Miner's article, found on page 778, Oct. No., and at friend Root's "supposing" the piping noise of queens is made with their wings. Why I was astonished at Bro. Miner, was that I have watched scores of queens in the act of piping, and never yet saw one move her wings further than a little tremulous motion produced by the tremor of the body. I am no scientist, but believe the noise comes from the inside of the thorax, from all the observations I have taken. Why I have watched this matter thus closely, was because Quinby, in his "Mysteries of Bee-Keeping Explained," attributes the noise to the queen's wings. In nearly every thing Quinby wrote in said book I found him unusually correct; so when I heard, for the first time, that a queen was piping on a frame I held in my hand, of course I expected to see her go through an operation as described by Bro. Miner. Instead of this she merely drew her body down a little closer to the comb and uttered the note, without moving, save the tremulous motion spoken of above. Since then I have watched scores, as I said before, only to see the same thing. However, I might not be so positive regarding the matter, that the wings are no help in making the noise, were it not that I have often heard old queens pipe when they had their wings clipped. As I keep all of my queens' wings clipped, it often happens, during a rush of swarming, that many of my swarms are allowed to return back where they came from, to wait until another day, when I can attend to them. In such cases, old queens will, quite frequently, pipe.

A year or two ago I had a swarm kept back by rainy weather till the young queens were about hatching, when it came out. For some reason which I do not now remember, they were returned, and the next morning I went to cut out the queen-cells to save them, when I heard the old queen piping loudly—in fact, the loudest I ever heard a queen. This queen I know had only very short stubs of wings, as I often clip every bit of all four of the wings off which I can get off, so I was again curious regarding the matter, and watched her for several minutes. The performance was the same as with the others, so the matter was for ever settled, in my mind, that the noise in piping is not made with the wings.

Now, I would not say a word regarding the so-called "nonsense" of queens piping in the cells were it not that I wish to correct what I consider another mistake, which is, that some assert that a queen just matured can fly. Perhaps there is no one point in bee-keeping that I have given so careful attention to as this. What I mean by a queen just matured, is, such a one as leaves the cell at the time she is ready to come out, or mature; such as hatch first in a colony, or such as are hatched in a lamp-nursery. All such queens can not fly, any more than can a worker just hatched, nor peep either, and do not do so under 12 hours from the time of hatching. My observations say a queen must be 12 or more hours old to either peep or fly, and she can fly as soon as she can peep, whether she is in the cell at this time or not. I am not surer of any thing in bee-keeping than I am that queens peep in the cell, for I have had them do so while I had my ear to the cell listening. Let me explain a little:

Three queen-cells on one comb are sealed at the same time; and if nature has its course, all will mature in seven days, during warm July weather. If the bees do not wish to swarm, all three will be allowed to come out of the cells at once, when soon all but one will be killed, none of which can fly previous to killing. If the colony is an extremely strong one they may run about unharmed for an indefinite period, *a la* Jones, and might stay long enough so some might fly. If other cells not so near maturity are in the hive they will be destroyed, so that no piping will be heard.

Now, we will take the same three cells again, but this time the colony desires to swarm. One of the three is allowed to hatch while the other two are prevented from leaving the cell by the bees clustering about them. These queens mature the same, and are just as old as is the one which is roaming over the combs. They cut the capping of the cell the same as did the other, but the bees put wax over the joint all around, except a little spot from 1-32 to 1-16 of an inch long, through which the queen puts her tongue, to be fed by the bees, which they do as often as food is required. Not far from 20 to 24 hours elapse, when the queen that is out is old enough to think of leading out the swarm, so she begins piping, which she continues to do 20 to 30 hours longer, when, if the weather is good, the swarm issues with this queen, she going out with the very first bees of the swarm. The other two queens are just as old as the one gone out, and have been piping in their cells nearly as long as the other piped outside. They are also ready to fly as soon as the bees or the apiarist lets them out, and often get out with the latter end of the swarm, so we frequently find from two to 20 queens with after-swarms. These queens have been matured two days, even if they are seen just hatching, and, in my opinion, no queen of any race, Syrian or any other, can fly when first hatched, unless she has been kept back by the bees. G. M. Doolittle.

Borodino, N. Y., Oct., 1886.

I too, friend D., have often watched queens while they were uttering their piping note; but from the movement of the body, I always supposed the wings had something to do with it; although I did not and do not now think the note was caused by rubbing the visible portions of the wings together. In fact, I do not know much about it? Will Prof. Cook or Prof. McLain tell us something about it? I have seen queens take wing within a few minutes from emerging from the cell; but very likely they were by some means, or for some reason or other, kept in the cell until they were several hours or perhaps a day old. No doubt you are right about it.

HOW TO MAKE LABELS STICK TO THE CANS.

A RECIPE FOR HONEY-CAKES.

I SHOULD like to tell some of the many readers of Gleanings how to put labels on tin cans, and have them stick so they will not come off. Make a thin solution of white glue, then thicken it with wheat flour until it is about the consistency of paste. This is to be made the same as any other paste. Cover one side of the label with the paste, then put on the honey can or pail, and I think you will not have any trouble about the labels coming off. I would suggest that there be something more printed on the labels, perhaps some recipe for cake or pies. Of course, they are to be made with honey, or, at least, part honey. We ought to think of some way to help sell more honey, and I think this way we have spoken of may help the bee-keepers to sell more honey, provided the honey is pure and nice.

I will send you a recipe for cake. It is nice to have it warm for tea, or equally good when cold. One-half cup of honey; one-half cup of sugar; one-half cup of butter; one egg; two cups of flour; one cup of cold water; two teaspoonfuls of baking powder. Flavor with lemon or vanilla. This recipe will make one large loaf, or can be baked in gem-pans. Mrs. Jennie M. Johnson.

Rexford Flats, N. Y., Oct. 9, 1886

NORTH - AMERICAN BEE - KEEPERS' SOCIETY AT INDIANAPOLIS.

Handling and Caring for Liquid Honey.

SOME VALUABLE FACTS ELICITED FROM FRIEND MUTH AT THE INDIANAPOLIS CONVENTION.

THE following facts were brought out by a series of persistent questionings, and I presume friend Muth was waked up to give them with a little more earnestness because one or two in the convention seemed to think they knew more about it than he did. Please bear in mind, friends, that Mr. Muth has probably handled more liquid honey than any other man on the face of the earth. He has had experience with it by the hundreds of barrels, and has kept it for years, and finally disposed of it all, I presume, at a paying figure. Friend M. is by no means a man who does business without pay.

Perhaps many of the friends remember the position he has always taken, that honey need not be left to ripen in the combs, but that it will ripen itself, if left exposed to the air, in almost any kind of open vessel. Some of us have been pretty much decided against this; but when the matter was fully explained at the convention, I began to feel ashamed of myself that I had not perceived it before. For instance, if we have a quantity of extracted honey in an open vessel, the heaviest portion will soon sink to the bottom, and the thin honey will be found on the surface. Now, if I should dip a saucerful from the surface of a barrel of honey in this condition, and it should taste raw, thin, or even a little as though it were fermenting, I should be inclined to call the honey bad. Not so, however, says friend Muth. Put it where the air has free access; cover it with wire cloth or mosquito-netting, or any thing that will keep out insects and yet permit evaporation, and in due time it will come all right of itself; that is, when the surface has evaporated to the proper thickness, the taste of the honey will be much improved, and the bad flavor gone. Dr. Miller stated that he had taken honey which he supposed was sour, or spoiled; but he found that, when placed in a shallow vessel on the reservoir of the stove, it would, in the course of time, become thick, sweet, and good. Sometimes honey is gathered and barreled when so raw and unripened that it will expand so as to bulge the heads of the barrels. If you bore an auger-hole in to relieve the pressure, the honey will fly out and shoot against the ceiling overhead. A novice might say that this honey had fermented, and was all spoiled. Not so. Give it free vent; expose a considerable surface in open vessels—crocks, pails, barrels, large tin cans, or whatever you may choose, and it will in time evaporate out all the watery part that rises to the surface, and become thick, nice, ripe honey. I presume, of course, these receptacles should be placed in a dry room, for a cellar might be so damp as to cause moisture to collect on the surface. Housewives frequently scald preserves to make them sweet, and succeed perfectly, even after there is quite a perceptible taste of fermentation. Now, the process of curing unripened honey is precisely the same, only it is done at ordinary temperatures. The result accomplished is the same—getting rid of the surplus moisture. If you spill some honey, and let it remain several days, you may notice it gets thick, and finally becomes like wax or gum. It slowly parts with a portion of its water. Honey in an open vessel will do the same thing, if you give it plenty of time. The warmer and drier the room, I presume, the better. Friend Doolittle does the same thing with comb honey, to evaporate and thicken the honey in the unsealed cells; and he does this, as you may remember, in what he calls a honey-room; namely, a room with plenty of windows, so that the sun may raise the temperature to a high degree.

My friends, if you want evaporation to go on rapidly you must also have a strong current of air through the room. A few days ago I undertook to dry some green corn placed on shallow pans in the greenhouse. It got very hot indeed, but it just soured very promptly without getting dry a bit. The same pans, placed in the open air in the sun, dried the corn at once, without any souring at all. In the latter case the air was constantly changing above the corn. In the greenhouse it was, to some extent, close or confined. We did not have ventilators enough to get a constant change in the air above the corn, as it gets when it is out in the wind as well as in the sun.

The following letter, bearing on this matter, is just at hand :

> I shipped 5 iron - jacket 10 - gallon cans, with extracted honey, weighing 115 pounds each, last October or November, to Messrs. ——— ——, and to-day I received the inclosed account. Please read account, letter, etc., and review circumstances. It seems to me proper for you to advertise such merchants as frauds, and protect the apiarist from losing his hard-earned products. CHAS. DORFMAN.
>
> Pittsburg, Texas, Oct. 5, 1886.

The commission men returned 2½ cts. per lb. for the above honey, saying that it so soured they were obliged to get rid of it for what it would bring. After paying the freight and all other expenses, friend D. received less than one dollar for five iron-jacket ten-gallon cans full of honey. Now, it is quite probable, that, had the commission men understood the matter referred to above, the honey could all have been restored to a good article with a very little trouble.

QUEENS FOR HONEY, INSTEAD OF QUEENS FOR YELLOW BANDS.

Dr. Miller remarked that he had two colonies of Italian bees that gathered white honey, resembling clover in taste, at the same time that all the rest of the apiary was gathering dark honey from buckwheat. Others have probably had a similar experience. The honey was probably gathered from red clover, as this is in bloom at the same time with buckwheat. Well, Dr. Miller asked the question, if it were not likely that he could get a strain of bees that would gather clover honey in the fall by raising queens from these two colonies. I presume that all present at the convention had no doubt but this trait could be encouraged and fixed in a few generations; but Prof. McLain remarked that we want to raise *drones* from these desirable colonies — not *queens ;* for it is a recognized fact in producing new strains, that the male could have by far the greater influence. For instance, as an experiment I have been raising chicks from some of my small hens that were extra good producers. One of these hens was a Brown Leghorn, and a pretty dark-colored one at that. She was crossed with a Light Brahma, and the greater part of her chicks closely resembled the male bird, although in size and movement they much resembled the little dark mother. I made a similar cross with Langshans, and these chicks, too, resembled the male bird so much that they were very fair Light Brahmas.

Again, my cousin, D. E. Fenn, of Tallmadge, O., is an importer of hornless cattle. As a matter of course, he talks eloquently in regard to the advantage of cattle without horns. The fact that they have no dangerous weapon, ready to use at a moment's notice, removes temptation, and therefore they are of mild and gentle disposition, etc. These cattle were imported from across the ocean, and the males are, many of them, worth a great pile of money. People ask how they are to get their money back on such an expensive investment. Now, here is the point : Cousin Fenn has experimented largely in crossing common stock, with the view of shortening or getting rid of their horns ; and, strange to tell, where the male parent is of this hornless breed, no matter what the female may be, the progeny have lost their horns ; but where the male has horns, and the female none, the progeny hold on to the horns. So you see that Prof. McLain may be right in scolding because we talk continually about getting queens for new blood, and say so little about the drones. Now, then : When you pay a good deal of money for an imported queen, or a choice home-bred queen, if you please, go right at it at once and prevent drone-rearing in all your other stocks, but encourage an abundance of drones from your imported, or choice queen, in every way in your power ; that is, make this queen furnish drones enough to meet all the young queens you raise, or that may be raised without your knowledge.

WIRE CLOTH FOR SEPARATORS.

Friend Betsinger, who was one of the first to use tin separators as we now use them, has been experimenting a good many years on different materials for separators. He has settled down upon galvanized wire cloth with meshes large enough to let the worker-bees pass through. Of course, a greater space is required between the combs of capped honey where even a wire-cloth separator is used ; but he thinks, aside from that, the bees go to work in sections just as well as if no separators were used at all. He says the bees build no bridge-combs against this wire cloth. As nearly as I can judge by the looks of the wire cloth, it is the same thing we advertise and sell for fish-ponds, four meshes to the inch.

THE PROPER SPACING OF FRAMES, A LA POND.

THE RESULTS AS TRIED BY A SCHOOLMASTER.

THE editorial comments on Mr. J. E. Pond's article in GLEANINGS of Oct. 1, p. 779, open for discussion a question of great interest to every bee-keeper who is working for comb honey. I can not agree with friend Pond's statement, that " the production of brood is in our own hands," through the proper spacing of frames. In my experiments during the past summer, with hives constructed on the Heddon plan, I noticed that sealed honey and sealed brood occupied cells of a uniform depth. These combs were built on full sheets of foundation; and when honey and brood were sealed, the surfaces were "as flat as a board." But that fact did not deter the bees from filling the outer frames with honey early in the season, nor from occupying a narrow strip of the upper part of every brood-frame with stores. As soon as the bees began work in the sections I uncapped these stores in the brood-nest, and the two sections of the brood-chamber were inverted and interchanged. According to the theory of close spacing, this honey should have gone into the supers, but it didn't. Those contrary bees quietly gathered it off the bottom-board and put it back into the very cells it came out of, even replacing it below the brood. This is at variance, too, with the reversing theory; and since my experiments through two summers have invariably led to the same results I am forced to believe that neither of these plans of management will give us absolute control of the production of brood. Although we may succeed partially in overcoming that instinct of the bees that prompts them to surround their young with an abundance of food, we can not wholly control it.

Quite a number of the hives in my apiary are 14⅛ inches square inside, and hold frames ten inches deep. In some of these hives there are ten frames; in others nine. At no time in the season can I detect any difference in the brood area of a frame from a hive of ten frames, as compared with one from a hive of nine. The proportion is the same in both. But, of course, the ten-frame hive will have the advantage in the total area of brood, and only in that respect will it meet the conditions of Mr. Pond's theory. From these facts it will be seen that nine combs, closely spaced, will give no more brood than nine frames further apart; but there is one thing very evident: With combs wide apart, the bees will loaf in the brood-chamber all summer. This I have proven to my sorrow; but when the frames are crowded close together in the honey season, the bees use no ceremony in entering the supers. For placing this plan so plainly before beekeepers, friend Pond is entitled to the thanks of the entire fraternity. **Z. T. Hawk.**

Denison, Iowa, Oct. 12, 1886.

Friend H., your experience is just about the same as ours has been; and I always had an opinion that loafing-room anywhere inside of the hive was a bad thing.—I emphatically favor crowding the bees up into the sections, or outside; that is, when honey is to be had in the fields plentifully.

CASE FOR SECTION AND SEPARATOR COMBINED.

SOMETHING THAT HAS AT LEAST THE CLAIM OF NOVELTY.

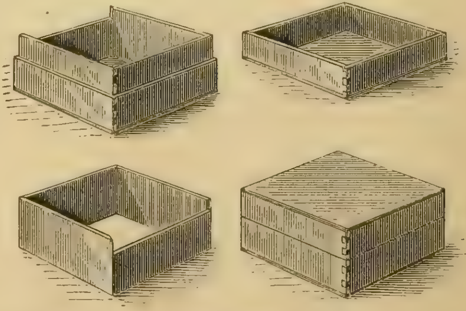
I WILL send you by mail one of our section boxes. We should like to have your opinion on it. You will see, on taking it apart, that it is in three pieces. The inside is like a common section, except that the bee-space is all on one side, and only on the bottom. The other two parts are covers to slip on over the shell. One is a little wider than the other,

To use the box, the narrowest cover is taken off and put away. Then they are a section closed on the back, and they can be entered only at the bottom, when they are on the hive; when they are on the hive, the back of one row, it will be seen, answers as separators to the row behind it. When they are to be removed from the hive, lift them out of the case and remove the shell from its cover, and turn it over and replace it so that the part that the bees have not soiled with propolis comes on the front; put on the other cover that was laid away, and it is done.

I think I can see two objections that will be put down at the end of this. One is, that the bees will not enter them readily. We have given them a pretty fair trial this year with blacks, Italians, Syrians, and a strain called the Bellinzona strain of Italians (but we think they are Cyprians), and we have put open and closed boxes on the same hive, and we could see no difference in the way the bees entered them; and in some cases the closed boxes were filled first. The cost is $15.00 a thousand, or 1½ cents each. Now you will say they cost too much. Let me give you a few figures. Common sections cost about $5.00 per 1000. Separators cost $1.50 per 100. It will take about 200 if they are used with the Root cases, which will amount to $3.00. The cost of pasteboard boxes to hold sections of honey is $9.00 per 1000. Add this up and you will have $17.00. Our box answers the purpose of all three; besides, they come all put together. Besides that, honey in old-style sections sells at 20 cents, and honey in these boxes sells readily at 22 cents. This more than pays for the difference in the cost of the box. We get double Mrs. Chaddock's prices here for honey—20 cents per crate; 25 cents per box, open boxes. **Ralph E. Gould.**

Lisbon, Me., Sept. 26, 1886.

We can better explain to our readers the above invention by means of the cuts shown below. The whole thing is the well-known Hutchins' patent, dated 1874; but the box is made for a packing-box, and not for a honey-box at all. Many of our old readers will remember that it has been several times mentioned before. It is made exactly as our one-piece sections are made, folded by a V-shaped groove, dovetailed at the corners.



GOULD'S ARRANGEMENT FOR COMBINING A SECTION CASE AND SEPARATOR.

The lower figure on the right-hand side represents the packing-box as made by Hutchins since 1874. The two upper figures show the same with the cover removed. Now, the only change needed to make it ready to go on the hives is to cut out a portion of one side as represented in the cut, so as to make an entrance for the bees. The covers, which are a little shallower than the bottom, are to be laid away when the sections are placed on the hives. The other parts are simply placed on the hive close together, with the openings downward. They can be put on to any of the common cases in use, so as to handle them all together if you choose. Of course, a strip of foundation, or enough to fill the whole section, is to be put in to make the bees build their combs straight. When the sections are ready to come off the hives, slip on the covers that were laid away, and they are ready for shipment. When you wish to exhibit them to customers, slip off the *bottom* of the box instead of the top, and you have exposed to view that portion of the section that has never been exposed to the labors of the bees at all. It is as bright and clean as when it left the buzz-saw, for it has always been boxed up until this very moment. It is true, the bottom part of the box has been exposed to the travel of the bees, and may be somewhat gummed; but the ordinary lithographic labels, such as are used on our pasteboard boxes, will cover this bottom completely; and when they are placed on the shelves or counters in the grocery, the bottom can be viewed instead of the top of the box. The top of the box will be nice and clean, of course, for it was never exposed to the bees at all; in fact, these covers should be shut up in a dark box, to keep the sun from fading the fresh color of the wood.

Now, then, the thought comes up, this is all very well in theory, but who has ever tried it to know whether it will work or not? Well, here is what friend Gould reports :

We have run our bees entirely for comb honey. We started this spring with 18 swarms; we have now 34 swarms, and have taken about 1400 pounds of honey. The clover season was good, but I don't think we got a drop of basswood honey this year. We have had in the same yard this year, blacks, Syrians, Italians, and the Bellinzona strain; but the blacks have surpassed them all. The Bellinzona did nearly as well as the blacks, but they are so ugly it is more than it is worth to handle them. One swarm of blacks gave us 4 good swarms and 25 pounds of honey. The Syrians don't get ready to work till clover is all gone, and then there is nothing to do, and they take to robbing. I believe they had rather rob weak swarms than to get honey honestly. The fall flowers have been very good here.

RALPH E. GOULD.

Now, dear friends, you know all about it I do; but the arrangement is so exceedingly ingenious that I have decided to give friend G. this free advertisement. The price, too, for a section with a case to put it in is very reasonable. The only difficulty I see is the extreme accuracy of the workmanship required to have them fit exactly; and I am afraid there will have to be some scraping done when the boxes are taken from the hives, so as to allow the covers to go on. The sample sent us is also a little frail, and I should be afraid the moisture of the hive might cause the glue, used in putting the boxes together, to let go its hold. Friend Hutchins, however, is a large manufacturer, or, at least, I have been told so; and as he has been many years in the business, he probably knows how to make and use materials that will stand even dampness.

THE WEBSTER FUMIGATOR.

SOMETHING FROM THE INVENTOR.

I MUST thank you very much for your evidently unbiased expression of opinion on my fumigator; but I must "pick you to pieces" a little over the matter, and endeavor to set you right on one or two items. You take exception, in no small degree, to its smell, and also to its making your hands dirty, with what you call the "sticky" matter. All these effects are due to one cause; namely, improperly filling the sponge. Now, there is no "sticky" matter whatever used in the "agent," so that nothing sticky can possibly come from it; but the sponge, being improperly filled, the "agent" is blown on to the varnish of the bellows; and the varnish, being partially dissolved by the carbolic acid, so becomes sticky. Just try this: Pour a little of the agent on your hands. It will wash off directly with soap, and I know you can't feel any stickiness in it. If the sponge was properly filled, this would not happen; and, no portion of the agent having escaped, your clothes could not possibly smell of it.

Of course, there is a right and a wrong way of charging a smoker, and there is also a right and a wrong way of charging a fumigator. You'll say, "You ought to have told me this before." So I ought; but then, we are not exactly next-door neighbors.

I always, after charging the sponge, take a piece of old rag and squeeze the sponge in it, not removing it from the hooks; the rag prevents the acid getting on your hands, and takes up the surplus that escapes; after which there is no chance of any of the agent being forced out at the cap on your hands, clothes, or bellows.

I do not know whether the American bees are less amenable to the fumes of carbolic acid; but here in England I can handle them better with such than with smoke. On first using the fumigator one feels that it can't be of much use, the same as you did before trying it, as nothing is seen coming from it; whereas bee-keepers have been used to seeing volumes of smoke issuing from the smoker. During three weeks I examined over 200 stocks, and on no single occasion used smoke; in fact, I never use any, and am handling bees every day during the season. Now, you mustn't take the above as a "puff" on my invention, as, in America, such is of no use to me in England, in a monetary sense I mean, you being able to make and sell them as cheap, without sending here for them. My object is simply to lay before bee-keepers an appliance that will economize labor, and help to make the pursuit of bee-keeping more pleasant to its votaries. We are all aware that the smoker is one of the most unsatisfactory tools we have to use.

Wokingham, Berks Co., Eng. W. B. WEBSTER.

Thanks, friend W. Although you are not strictly a "near neighbor," yet even if the Atlantic does intervene, I feel as if I could reach your hand just the same. After pouring a little of the agent upon my fingers, as you directed, I find that it is not sticky. Your supposition, that I got a little of the liquid upon the varnish of the smoker bellows, is correct; and hence, not recognizing that the varnish was the real factor that caused the stickiness, I reported that the agent was "sticky." But as regards the odor, I beg to take issue with you; and further trial with the agent confirms my first statement. I have no doubt but that you can handle 200 colonies successfully with the fumigator, and I believe I could do it here with only gentle bees; but with smoke I think I could examine the same number not only with more safety, but a half quicker. I speak whereof I know, for I have handled fifty colonies with your fumigator.

ERNEST.

THE TOAD, AND BEE-STINGS.

ALSO SOMETHING ABOUT KING-BIRDS CAPTURING BEES.

WHO has not heard many things against the toad? When a mere lad I was told that, should we touch but the skin of this old honest-looking acrobat, warts would cover the place that touched the cold clammy cuticle of his toadship. Strange it is, how such opinions gain currency. It is said, that misery loves company. I never quite believed it; but if it is ever true, we might think that our warty amphibian might like to sow a full crop of warts on whatever he saw or touched; but I early learned that, had he the wish, he has no power to bequeath his excresences to aught except his own kith and kin. I always loved honesty, and there is a frankness and honesty in the look of the toad that captivated even my childhood's eye. So, per force, I had to shake hands, gain the acquaintance of, and make friends with, this honest, warty old toad. As a result, I received, not a wart, but a very companionable friend. Thus it was that I learned his many good traits.

Few of the animal kind are better insect-hunters than the toad. He delights to roll them, not as a sweet morsel *under* his tongue, but as a savory mouthful captured *by* his tongue. It is just fun to see a toad gobble down a fly, ant, or beetle. This is how he does it: The fly stands off some distance, winking in fancied security, when, all at once, the great jaws of his toadship open wide, and the fly darts into the cavernous mouth as though it were home, and he were sent for. Closer scrutiny shows that the long sticky tongue of the toad just runs out with a rush and "runs in" the unsuspecting fly. The fly isn't even asked if he wishes to go.

It were well if toads were content to feed only upon such insects as annoy or injure us; but not so. How often have bee-keepers seen this demure old batrachian quietly sitting at the entrance of the bee-hives, enjoying the cool evening breeze, and lapping up the belated worker-bees as they come heavily laden from the field! We can wish he wouldn't do it; but then, when we remember that he has been honestly employed all day, and remember, also, how good honey is, we can hardly visit him with our wrath for this one overt act. Candidly, the toad does so much good that I would not pronounce sentence of death, even if he does gulp down a few worker-bees. On the whole, he is a valuable friend, Nor would I raise my hives two or more feet from the earth to avoid him. I would the rather fence out the toads by a low close board fence, should he gain too great a fondness for my pets of the hive.

But, how about the stings? Is the toad so quick that he receives no sting? Nay, verily; no bee-keeper will believe, as I once heard a person just stung by a bee say, "Lightning can not strike a bee so quickly as not to be stung." If, then, the celerity of the act does not preclude the sting, how is it that the toad does not run fairly yelping at the first capture? I think he either has very little feeling in his throat, or else, finding the bee so to his taste, he has become callous to the sting. From observations that I have made I think the former must be the case. The past summer I have examined two throats of toads killed, the one just after and the other soon after it had been feeding upon bees. In both cases, just as many stings were found fastened in the toad's throat as the toad had been noticed to capture. Thus we know that the bee does sting its enemy. I did not find inflammation. Thus we must believe that the throat is proof against the venom of the bee.

During the last of May, while visiting at my brother's, we saw many bees captured by king-birds. The bird would fly from some perch, capture a bee, and then fly back to the perch and swallow the prize. Bertie, my little boy, shot one of the birds, and found several worker-bees, not drones, in the bird's stomach. Who shall determine, in this case, whether or not the bird is stung? We shall try to the coming summer.

A. J. COOK.

Agricultural College, Mich., Oct. 19, 1886.

We are very much obliged indeed, friend C., for the facts you give us in the above. I do believe it is a Christian duty to teach our children not to fear toads; and, can't I add, even snakes? I find it almost impossible to keep our boys from killing almost every striped snake they find on our grounds; and since I have begun to get somewhat acquainted with them, I confess I rather like to see them gliding about so noiselessly. Should we not all learn to go slow in judging hastily these neighbors around us—the dumb neighbors as well as those that can talk and reason?

SHIPPING EARLY QUEENS FROM THE SOUTH.

DO BEES HEAR?

MR. BRUBAKER, on page 484, writes very disparagingly of getting queens early in the season. He says he has never been able to do it earlier than he could do it himself. Well, I think the reason is this: He orders (and so does almost every one else) of the "extensive breeders" of the South. Those who are well advertised have a large number of customers, and have had for several years past, and are most *prominently* known as Southern breeders, and consequently they receive all, or nearly all, orders made to the *South* for queens—more than they can fill by June 1st, probably, in most instances, while the beginner gets but few orders, and has many more queens than he gets orders for—just as good queens, too, as those sent out by the "extensive breeders" of the South. I think if parties wanting queens early will act on this suggestion, they will be much more likely to get them. As to sending queens from the South to the North, early and late in the season, I can say this: In 1885, March 10, I mailed H. H. Peters, Leighton, Pa., a queen that was safely delivered on the 6th day after mailing. It snowed and sleeted heavily on the 11th here in North Carolina, the day after it started. I also sent queens the same spring to Nebraska, April 4; arrived all right; to R. L. Taylor, Lapeer, Mich., March 28, 5 queens; they also arrived safely. This spring I mailed queens to Ohio, April 17; Canada, April 25; New York, April 17th; *all* arrived safely. I see no reason why queens can't be mailed safely to almost any point in the U. S. after April 15th any year. I for one have, and will do it again, if it be the Lord's will.

Out of 66 hives, spring count, I put sections on only 3, the others being run for bees and queens, for sale. One of these yielded me 20 lbs. of nice capped honey, May 20; sections, filled and capped, were taken off the other two, May 24. The honey-flow for this section began April 26th, and closed May 25th last spring.

JONES ENTRANCE-GUARDS.

These will not always confine queens. I had a swarm issue this spring that had a guard over the entrance. It confines drones all right.

DO BEES HEAR?

If not, why do they set up the call that they give when hiving, just as soon as they decide to accept the proffered home, and begin to enter it? Is it natural that any thing which has no hearing should be endowed with a voice—*as a rule*, such as bees, for instance? Of what effect to them would it be without the benefit of hearing one another? How do they locate the hum of bees when robbing one another, and come in numbers so quick, if they can't hear? ABBOTT L. SWINSON, 71—72.

Goldsboro, Wayne Co., N. C.

Friend S., it seems to me the evidence is pretty strong that bees *do* hear.—Very likely you are right about getting early queens from the South; but there is this one thing very certain: the man who has a supply on hand, ready to fill orders in March and April, will have a wonderful business when people get to find it out. See page 305, 1886.

NOT ABOUT BEES.

DR. MILLER TELLS OF HIS VISIT TO THE HOME OF THE HONEY-BEES.

AFTER making a visit to my old mother in Pennsylvania, I started to the N. A. Convention at Indianapolis, and stopped on my way at Medina. I suspect many of the readers of GLEANINGS would like to know something about Mr. Root at his own home, for I find my own family have been very much interested in hearing about it. Since I was at Medina before, he has got into his new house, and I was delighted to find such an elegant home. My own home is of a more common sort, and the surroundings by no means such as I would have if I were in a more money-making business; but I do enjoy seeing my friends have nice things. I remember but two things that I wanted to see different about Mr. Root's house. I wanted to see the fine brick walls covered with *Ampelopsis Veitchii*, and perhaps he may yet start some plants of this grand climber, for it takes some time for it to grow. There is, in the minds of some, a prejudice against this class of plants, which is, I think, not well founded. They think that the vines keep the brick walls damp, and thus hasten their decay. If they did do so, their great beauty would be a considerable compensation. But I think it quite possible that the reverse is the truth. The close foliage makes a dense covering, which protects the wall against the injurious heat of the sun and the beating rains, and it is quite possible that the little feet by which the plant attaches itself to the bricks serve to some extent as roots, and draw moisture from the wall. The other thing was this: As I went up to my bedroom I passed through a hall having a floor of wood of natural color, and up a flight of stairs, if I remember rightly, of ash, finished in natural color, and the good taste was shown to have no carpet to hide this beautifully finished wood; then on coming to my bedroom the first thing that met my eyes was a door, one side of which, instead of showing the natural grain of the wood, was covered over with paint, and then the attempt was made to imitate the natural grain by graining with paint. That riled me. To the educated eye, the plainest grain of even pine wood is preferable to the best graining; and in this case it could hardly have been because the door was made of pine, for in the very same room the beautiful inside shutters were nothing in the world but plain pine finished natural color. I hardly see why people will persist in getting up these shams in the way of graining, when the genuine grain of the plainest kind of wood, finished in the cheapest manner, looks so much better. Besides, when the graining is marred or knocked off, there is nothing left but to cover it all over again; whereas, the natural grain can not be knocked off; and when marred it can easily be brightened up again. So far as I could judge, the grounds about the house are laid out very nicely, although, of course, the trees and shrubbery have not had time yet to attain any great size.

I was a little disappointed, when I asked about some of the things planted on the lawn, to be told that the gardener could tell me all about them. I thought it was Mr. Root's business to know all about them himself, so as to enjoy them. But when I passed beyond these grounds to the market-garden he could answer all my questions, and many that I didn't ask. And, oh what growth! But when I pushed my foot through the finely pulverized loam I didn't wonder. Things couldn't help but grow in such soil. On this ground, stand still a few majestic maples, gorgeous in their rich autumn dress, which Mr. Root thinks must give way for more garden stuff. I hope the women-folks, with their natural love for the beautiful, will enter so earnest a protest against such ruthless vandalism that Mr. Root will be compelled to stay his hand.

I will not attempt to describe the great factory and the many happy faces I saw there. The lunch-room is quite an institution; and with its clean and well-cooked food it is no great wonder it should have an extensive patronage from others besides those in the immediate vicinity. Mr. Root has adopted the sensible and humane plan of having his family take dinner and supper sometimes, if not always, at the lunch-room. While he was eating dinner, some one came and told him that a customer wanted some celery, and there was none at the store. In a little while Mr. Root finished his dinner and started for the celery-patch, perhaps an eighth of a mile distant. I followed, puffing, after, for Mr. Root is great on a tramp, and I am getting pretty fat. Soon he came to the long rows of celery, beautiful to look at, but not so nice to straddle over; but I straddled after him, although there seemed some little danger of being split in two thereby. To my relief, after straddling two or three rows he stepped on the summit of the others with something like an apology in an undertone for so doing. Then with a spading-fork he dug up the celery, trimmed off the roots, went and washed it at the pump, took it to the store, and, after weighing, got ten cents for it—hardly half the price I have seen the same amount sold for. I said, "Why didn't you let somebody else do this?"

He replied, "The boys were not through dinner yet, and I didn't like to ask them."

"Then let the customer wait," said I.

I don't remember exactly what answer he made. As one of the proprietors of the publisher of GLEANINGS, (for have we not all a kind of proprietorship in GLEANINGS and its founder?) I protest against his frittering away his time in things of this kind that could be done just as well without him, and wherein his time will not net him more than perhaps 50 cents a day. It would be better for Mr. Root and the world at large if he would get it into his restless head that it is his religious duty to cultivate a little wholesome laziness, and save himself for a longer life instead of being cut off in the midst of his usefulness. I am very glad to believe that in his son and son-in-law he has very worthy assistants. If I am not mistaken, Ernest bids fair, with his candid way of viewing things, and his keen habits of observation, to make a better bee-keeper than even his father was. If it were not for trenching on private ground, I should like to speak of Mr. Root's matronly wife and interesting family, but I forbear. I said to little Huber (he's a regular perpetual motion), "We have two cows at our house." He promptly replied, "Fudge! Uncle Hen has more than that."

One of the last things I saw as I took my way to the station was one of the $4.00 wheelbarrows. I stopped to examine it carefully and admire its beautiful appearance as well as nice construction, and between you and me it's better than my cheap one; but I wouldn't gratify Mr. Root by saying so.

Marengo, Ill., Oct. 19, 1886. C. C. MILLER.

Friend M., I want to protest a little. You do not understand me, and nobody seems to understand me, unless it is my good friend Mrs. Chaddock. It won't wear me out at all to get out in the lots after celery; on the contrary, I am, almost all day long, wanting some excuse for tramping out over the lots, and especially during this beautiful fall weather. If somebody should come for fifty dollars' worth of chaff hives, you would not see me budge an inch; but if he were in a great hurry, and anxious to get away at the very earliest possible moment, John and Bert and Mr. Horn, and may be some more of them, would go without their dinners entirely to help him off—I am sure they would. Now, celery-growing is one of my latest hobbies; and they all know that, if somebody should come and want five cents' worth of celery I should just be delighted at the chance of getting it for him. Why, I would take off my hat, make my best bow, and invite him to go down into the field, if he looked as if he could tramp; and instead of being worn out by exercise, I should get a new lease of life. When the weather is fine, and things are growing nicely, I am generally in such a hurry to get out into the fields I finish my dinner before any of the rest. During this dry fall weather we are engaged in introducing the "New Agriculture" down in the creek bottoms. We have routed the frogs, and the rich dark muck, in the bottom of the holes formed by the old creek-bed, shovels out just as nice as can be. Then we take a horse and stone-boat, and gather all the stones and rubbish that can be found anywhere in the neighborhood, to fill these reservoirs. Another thing I enjoy down in the fields is getting acquainted with my brood of Light Brahmas. They now roam over the greater part of our 18 acres; and when they see me down there they know there is going to be some fun and something good to eat.—In regard to the real wood itself, instead of the most artistic graining, I am with you exactly. When I build another house it shall all be natural wood. Our painter said he could make graining that would never crack and peel off; but there is one of the doors that is so cracked up that it looks "awful" already.—The reason why I could not give you the names of the plants in the dooryard was because I can not encumber my mind with so much. For instance, the names of the greater part of them are like the plant you mention — *Ampelopsis Veitchii*. Now, if plants with such names as these opened up an opportunity of teaching people who are out of work how to make a livelihood right at home in their own gardens, as does celery culture, then I might love to go into it. Just now I am heart and soul engaged in the work of telling people *what to do*, and *how to be happy while doing it*.

STEALING PROPOLIS, ETC.

HOW TO GET SIX GALLONS OF HONEY FROM A FOUR-GALLON KEG.

I PLACED a number of old rotten hives under the shade of a cherry-tree in the apiary, in order that the bees engaged in that particular line of business might, instead of a trip a mile or more to the gum swamp, help themselves to the large supply of propolis which lined the cracks and crevices of the hive; and seeing a number at work a few days since, I closely watched the *modus operandi* of obtaining and placing it on their so-called baskets. The particles bitten off are passed alternately to one and the other, and the amount apparently deposited on each is kept as equal as if weighed and measured with mathematical precision. On the wing, I suppose their line of flight would be uneven if a greater weight were placed on either side, or only one basket were loaded. Like Cowper's unwilling race-rider, the same weight was placed on either side to make the balance true.

BEES STEALING FROM EACH OTHER.

Hundreds of times I have noticed bees robbing, or stealing honey; but they are not confined to this particular article, for I saw an unusual theft perpetrated. A bee alighted where there were several others at work, and at once commenced to nibble away at the hard mass, but without success, and, raising its head, stood motionless for a moment, seemingly in deep thought. A bee near by, and just ahead, whom she was eyeing, had nearly obtained a load of the wax, and was turning round and round with head down, pulling at a small particle, nearly detached from the mass, when suddenly, and as quick as thought, she seized one of the basket-loads, and, with mandibles and fore legs, tore it from the basket of the industrious worker, and appropriated it to her own use. The thought occurred to me, "Did they belong to the same colony?" If it is the queen that imparts the peculiar scent whereby each worker recognizes the inmates of that family, would it not be remarkable that this scent is retained for hours, on the body of workers in the sun and wind, and continue after contact with, and frequently enveloped in, highly scented blooms?

BEES SHEDDING.

Something new I learned lately; and as a new edition of your A B C is frequently issued, with changes of old and the addition of new matter, I contribute it for the enlightenment of your readers. On a visit this spring to a man living 10 or 12 miles from me in the hills, and who wished to sell his bees, I learned something new. His bees were in plain board hives, with cross-sticks through the middle, and placed at convenient points about the yard, under trees and bushes. He knew as little about bees as he did of comets and the other heavenly bodies, and measured the knowledge of others on this and kindred subjects by his own meager supply. He was at my side as I examined the gums as best I could, making remarks as to its condition at each inspection. Turning a hive bottom upward (a colony of hybrids), I said to him, "Some of the bees in this hive are very pretty, and finely marked. They are beautiful."

"Yes," he said, very seriously and impressively, "you will find that all my bees will be as fine as these when they *all* shed off in the spring."

I made no answer to this unpublished information; but as we traded, it occurred to me that he thought this was the nail that drove the trade and induced me to take the bees, that all the bees would be finer-looking when they "shed off" in the spring. You have noticed old bees shed off, or that had rubbed off the hairs, or fuzz, of their bodies (thorax) passing between the combs, and in various other ways; but this shedding, as the horse, cow, and other animals, will be an entirely new idea to you.

BEES PACKING.

Esquire D. and a neighbor were discussing the productiveness of swarms hived in different ways and at different times, when his neighbor, becoming very enthusiastic in praise of a swarm placed the year before in a 4-gallon keg, said, "They went to work—never saw bees do better, and the first time I robbed it I took six gallons of nice strained honey."

"How's that?" inquired the 'squire? "You hived them in a 4-gallon keg, and took 6 gallons of honey from them? That don't seem possible."

"Well, the fact is, it don't look possible, and wouldn't be with any thing but bees; but you must remember they are the beatingest things on earth to pack. We took 6 gallons of nice honey."

Murfreesboro, Tenn. W. P. HENDERSON.

Friend H., the fact you give us about bees stealing from each other's legs is something quite new. You ask if they belonged to the same colony. Now, perhaps you may think I have got a little wild when I say that recent observations convince me more and more that bees do not recognize each other by scent, but by actions and behavior. I have seen a nucleus made up of bees from three or four different colonies, that would, in just a few hours, defend themselves from robbers as perfectly as any old colony; and it is my belief that they would have repelled robbing bees from the same colony they had been taken from but a few hours before. The scent may have something to do with it; but I am satisfied that it is only a small factor, even if it has any thing to do with it at all. If this is true when bees meet each other in the fields, they have no means of telling whether they are from the same colony or not.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

CAN MELILOT BE USED FOR PASTURAGE?

IS melilot, or sweet clover, good for hay or feed for stock in any shape? If so, do you think it will pay to raise it for that purpose? Will stock eat it as they would rye or any other grass? A friend of mine has a piece of land which he would like to seed in some kind of hardy clover for pasture, and I think melilot is about the only variety which will stand our climate, as it is subject to drought. My bees are swarming again. Hives are full of brood, some even in the sections. In some cases I find 16 frames full of brood; no honey in lower frames; just about two inches along top-bars of upper. I am using eight-frame Simp. hives. What shall I do with them? M. BROERS.

Gonzales, Texas, Sept. 27, 1886.

Melilot has been used to some extent for pasturage, but stock will rarely eat it if they can get any thing else. There is a particular stage in its growth, say when it is one foot or eight inches high, that the stalks are tender, and much like ordinary clover. At just this stage, some horses and cattle will eat it with avidity. As a rule, however, it has been abandoned as a forage plant.

LEAVES FOR PACKING; OTHER MATTERS.

I have just about finished packing my bees, leaving them on their summer stands. I have used forest-leaves, and believe them decidedly preferable to chaff or straw, inasmuch as they will not entice the mice. Chaff or straw usually has more or less grain mixed through it, and, of course, this is most inviting to the little fellows.

As I take a retrospective view of things, a few points come up which I feel like mentioning. I have wondered if others have been through what I have in introducing queens. In one instance, upon removing the lid at the time a queen was emerging, to my surprise she immediately took wing. I was fortunate enough to catch her, however, at the first grasp. At another time I selected eggs from a fine queen from which to rear a queen for a colony that had repeatedly rejected the queens I had sought to introduce. The time of exit for the queen, from egg, had come, so I went to see her swing open her portal; and, what was my astonishment to find her making her way out at the base of the cell—a long fine one! Well, I thought, what kind of a queen is this? and as I could not brook delay I used my penknife to emancipate her "royal highness," and out came—a majestic graceful form? No; a flirting, mincing worker. Of course, I had read of such things, but this was my first experience. I want to add, this colony has a queen now that is still laying, in spite of the cold days and nights.

240 LBS. OF EXTRACTED HONEY PER COLONY.

My bees have averaged me 240 lbs. to the colony (spring count). I have extracted most of my honey, and marketed it, in a clear white-glass jar, manufactured by the Independent Glass Co., Pittsburgh, Pa. Pints cost only $8.50 per gross. They hold 1¾ lbs. I notice Mason is making a flint jar now. The old Mason jar, with the green tinge, was not a desirable receptacle, as it gave the honey a bad appearance. The jars I speak of have a glass top which screws down upon a rubber. With all, they make a very nice and attractive parcel. I have received 30 cts. for every jar, so you see my bees have brought me in roundly. In all this I remember Him who is the source and measure of all God's goodness, and I send up most gratefully the incense of praise. **Frank C. Blount.**

Lawndale, Ill., Oct. 16, 1886.

Friend B., I have never thought of the reason you give for preferring leaves to any thing else for packing; namely, that there is nothing in the leaves that mice would want; and I believe reports seem to indicate that there is no better absorbent known than forest-leaves. By the way, forest-leaves are coming much in favor, not only for protection, but as a fertilizing material, and to make hard clay soils light and friable.—There is another advantage in using fruit-jars for honey—they are always worth to the purchaser all they cost, and I have many times wondered why they were not used in place of the common jars and bottles that are of little or no use after the honey is consumed. Jars made of flint glass are rapidly coming into favor.

CAN A BLACK QUEEN BE THE MOTHER OF A PURE ITALIAN QUEEN AND OF A BLACK QUEEN?

What is it? Well, I am going to leave it for you to name for me. I have invited all my bee-keeping friends here in New Bedford to see a queen I raised this year, the last of June. They say they think I have a curiosity. In the first place I had a black queen in a swarm that came to me two years ago, and I hived it June, 1884. Last May she cast a swarm the 24th, 25th, and 26th, with Alley's queen-trap attached to the entrance. The swarm went back twice. The third day the queen got hung trying to force her way through the perforated zinc, and, as a result, died. I felt sorry, for she had been a very profitable queen. She left one queen hatched, one still in the cell. May 28th I divided the colony. I liberated the confined queen, and let her run with one-half the bees. I put the liberated queen and the second half into another hive. No. 1 has a black queen; has filled both the upper and lower stories with bees, and I shall get some surplus from them. No. 2 has a queen, large and prolific, with three distinct yellow bands, and is as handsome as any one wants to look at. I have six hives, all Italians save one. I closed the hybrid drones in until after she was fertilized. Her young bees have been examined by the best judge I can get here, and not the least trace of hybrid can be found in the hive, all the old ones having died out.

July 21st I took a small handful of bees and gave them two frames of brood, one with eggs. They raised a queen, which was purely mated. When the queen was laying I gave her bees a frame of brood, and another partly filled with empty comb. August 21st she had four frames well covered with bees and brood. Two days ago I gave them one more frame of empty comb, with 3 or 4 lbs. of sealed honey, and one frame of fdn. They have six frames now, and a prospect of doing well. This is my first nucleus. If I can get them to cover six frames I can carry them through the winter all right, and have a good start in the spring. I think a great deal of fall queens.

What is a pound of new comb worth when the selling price of honey is 25 cts. per lb., and 50 lbs. is considered a good yield per hive?

New Bedford, Mass. **Chas. L. Eldridge.**

I think the queen you mention, with three distinct yellow bands, is, without question, at least partly black blood; and having met an Italian drone it is nothing strange that her worker-bees are all of them well marked. No doubt many queens have been pronounced full blood whose worker-bees were one-fourth or more black bees; and, on the other hand, many have, very likely, been pronounced hybrid that were full-blood Italian. The reason why the two queens, although from the same mother, have given queens so unlike, is probably in a line with the fact that many Italian queens, after having met a black drone, produce worker-progeny, some black, some three-banded, and some apparently hybrid.—Your concluding query, I presume, refers to the value per pound of new white comb to fit into section boxes. If it were not for the additional trouble of fastening in these pieces of white comb, compared with putting in foundation, I should think they might be worth $1.00 per pound, or even more.

MAKING HIVES OF PLASTER OF PARIS.

I see that John Craycaft, of Altoona, Orange Co., Florida, has got started on this road. Why not adopt my invention? I have been using cement hives for six years. I mold mine out of plaster of Paris. I have about 100 of them in use. I have some that I have wintered six years in succession. They are warmer in winter and cooler in summer; are moth-proof as well as robber-proof, and cheaper than any wooden hive in the North. The lower story needs to be molded large enough to take in a box so as to leave a chamber of two inches all around and under it to fill with chaff; then put chaff on top of the swarm. They will winter well in this cold latitude. In the South, the cement is all that is needed. They need no paint, and have given good satisfaction where tried. They can be molded so as to fit any frame.

I started in the spring with 70 colonies, and increased to 120, mostly by artificial swarming. I have taken 2500 lbs. of extracted and 1500 lbs. of comb honey in 1-lb. sections. The extracted is selling at 9 cts., and comb 12½ cts. The season opened up as well as I ever saw. I had a good flow until the drought set in, which was about the middle of May. They gathered but little foul honey, and are in good condition for wintering.

New Sharon, Ia., Oct. 7, 1886. GEORGE BRIGGS.

No doubt, friend B., plaster of Paris will answer excellently for bee-hives, but I think most of us would find it more expensive in the end, aside from the fact that it is so easily injured. I think I should want my hives painted for looks, if for nothing more; and painted plaster of Paris looks about as unsightly as a thing can well look, after it gets bumped and punched, and the corners are knocked off.

A QUEEN'S LOVE FOR HER OLD HOME.

Will you kindly throw a little light on a small matter that puzzled me somewhat in my bee-keeping this summer, and that seems to me to be rather unusual? I give you an extract from my diary:

Monday, Aug. 2, 1 P. M.—I caught and killed an old queen in black colony No. 6. At the same time I caught and caged a handsome, young, prolific Italian queen in colony No. 4, standing about twenty feet north-east from No. 6, both hives facing south. I put the caged queen on top of the frames in No. 6 till evening. At 7 P. M. I found the bees quiet about the cage. I removed the drone-trap (Jones's), smoked the bees and let the queen run in at the entrance, according to J. E. Pond, page 530. I replaced the drone-trap, and thought all was right. Friday, Aug. 6, I examined Italian colony No. 4, and was pleased to find 15 royal cells in different stages of development. Saturday evening, the 7th, I examined black No. 6, to see if my young Italian queen was all right, but I could not find her. Monday afternoon, Aug. 9, looking over Italian No. 4, I was surprised to find not a vestige of a royal cell left, but found quite a number of royal cells started in black No. 6. Tuesday morning, the 10th, with the help of my son, I examined Italian No. 4, and found the queen back in her own family again all right. I then went to black No. 6, cut out all royal cells, and gave Italian brood, which perhaps I might have avoided, as I found very young larvæ, apparently from eggs left by the young queen. About the end of August I introduced her to a hybrid stock in the same way, about 40 feet west. She was received, and remains quiet. F. CLARE.

L'Original, Ont., Can., Sept. 27, 1886.

The circumstance you relate is not common, yet instances of similar character have appeared in GLEANINGS at different times. As the queen was, I should judge, fertilized in No. 4, she had no difficulty, after leaving the black colony, in finding her old home.

A VISIT TO M. H. HUNT'S APIARY; THE ADVANTAGES OF WINDBREAKS.

On the 13th and 14th of the present month I made a visit to the apiary of Mr. M. H. Hunt, of Bell Branch, and was so well pleased with his manner of handling bees and honey that I have decided to follow his mode of manipulation until I am *certain* that I have found something better. My experience in wintering in single-walled hives is decidedly in favor of good windbreaks. Fourteen colonies (9 weak, 5 strong), with good packing and windbreak, all came through in good condition; of 13 colonies, all strong in bees and stores, with good packing and no windbreak, 12 died before spring opened; and I think there could have been no difference in their stores, as it would not exceed 60 feet from one corner of my apiary to the other, and all had natural stores. I shall start this winter with 25 colonies, all strong in bees and stores, and hope to be able to make a good report in the spring. ISAAC T. GOULD.

Corunna, Mich., Sept. 27, 1886.

DOES DAMP AIR RISE?

I am ever so much pleased with those bee-feeders. As soon as I got them unpacked I had to sell some of them to my neighbors for bread-pans and custard-dishes, and I don't know what else they were going to use them for. I want to ask you one question: Does foul or damp air settle to the bottom a bee-house, or does it rise to the top? This question I have never got solved. Almost every one disagrees on it. My ventilator at the bottom of is one inch in diameter, coming up through the flour. My ventilator at the top is a five-inch pipe; and what I want to know is, how near to the flour does my upper ventilation need to come down? BENJ. E. RICE.

Boscobel, Wis., Oct. 4, 1886.

Friend R., your question is not an easy one to answer. Damp air is certainly lighter than dry air at the same temperature. In a bee-house, however, the bees warm the air at the same time that they dampen it by the moisture from their breath, and this damp warm air, of course, rises, and would pass out of the ventilator if there were room enough for cold air to come up through the floor and take its place; but a passage one inch in diameter would by no means admit of this. Where the tube can be attached to a stovepipe, so as to get up a considerable draft, it is usually run down to within a few inches of the floor, that it may draw up the cold air and take it away. In this case it would also remove any carbonic acid that might have been given off by the bees and settled at the bottom. Carbonic-acid gas is a great deal heavier than common air, and sometimes collects over the bottom of the floor, making the air poisonous. If your ventilator is not connected with a chimney or stovepipe, I would have it reach just through the ceiling.

THE HEDDON HIVE.

I spent a day at the convention at Indianapolis last week, and was very much interested in the proceedings, and in examining the various articles exhibited. I wanted to see that marvelous hive of Mr. Heddon's. It is a beauty, but I do not think it will suit us in this climate. We can not afford to have a summer hive and a winter hive. We must have one that will answer for both. For that purpose we must have a chaff hive. I see no way of making a chaff hive out of the Heddon hive. It may be very fine for summer, but will not do for wintering on the summer stands. I know nothing better than your chaff hive for that purpose. I have 26 of them in my apiary now, and they work nicely. The only objection to them is, that they are inconvenient in the summer, when you have the top part full of wide frames, and want to get into the lower part. How do you manage it? What is the reason you can not construct a case like the Heddon surplus-case, or like the surplus-case that was on the hive exhibited by Bro. Demaree, and have it to fit into your chaff hive, so you could lift out the case, sections and all, at one time? Can not such a thing be made so it will work? J. H. LOUDEN.

Bloomington, Ind., Oct. 18, 1886.

Friend L., the difficulty of getting out the lower frames when the upper ones are full of sections has never been remedied; that is, there has never been a remedy suggested that will not make the hive more complicated, and more troublesome to work than to have it as it is—at least, that is my opinion. Of course, you can have Heddon crates, or crates of other styles, to lift out, instead of lifting out the wide frames, and we now make them with crates instead of wide frames when preferred; but you will find it is some trouble to lift a couple of crates when they are filled with honey, and put them back again. The difficulty, however, is not so very great as might be imagined; for few honey-producers are in the habit of disturbing the brood-nest when the bees are at work in surplus-receptacles.

A FRAME HIVE PRECEDING LANGSTROTH'S.

C. H. Lake, of Baltimore, was at the Elkton, Md., Fair. He, among an extensive exhibit there, had the effects of Colvin in the apiarian line, and made same startling statements. He had a hive presented by Otto, king of Greece, to Mr. Colvin, in use in Greece long before Mr. Langstroth's invention of the "frame." This hive opened on one side, from which "frames" were pushed in on rabbets, or cleats. There were three sets of frames, of about 8 or 10 each, above each other, with ⅜-inch space between and at the ends. He also read quotations from old manuscripts, describing these hives, and also showing that separators were in use several centuries ago. If any of this is new to you, I wish you would write to him for his evidence, or go and see these curiosities and papers.

CHLOROFORM WILL CONQUER.

I have had a hybrid colony queenless for more than a month, which has resisted all the methods of introducing queens until yesterday. Three fine queens have been killed, after prolonged efforts with each. At the Elkton Fair, Mr. Lake had an albino queen-cell to hatch, and I came in possession of the queen. The next day at noon I presented the same to this hybrid colony, which at once began to tear her to pieces. I seized and caged her. I then dropped into the bottom of this hive—a 3-frame nucleus, about one teaspoonful of chloroform; placed the queen in, and closed the hive up. I waited until all became quiet—about 10 minutes, when, on looking in, a good share of the bees were on the bottom-board, anæsthetized. I found the queen, held her in my hand until she could walk around pretty well, when I placed her on a comb, and again closed up the hive until the bees were well recovered, when I carried the colony out to its old location, and allowed the bees out to enter. The queen to-day is all right.

S. W. MORRISON, M. D.

Oxford, Pa., Oct. 11, 1886.

We are fully conversant with the facts you mention, friend M., and I believe Mr. Langstroth knew all about it after his frame and hive were invented, for he and Mr. Colvin were very intimate friends. You will notice Mr. Colvin's name mentioned several times in Mr. Langstroth's book. These Grecian hives were never made practicable, and the simplicity of the L. frame and hive, compared with them, is what gave bee-keeping such a great impetus at the time of friend L.'s invention.—The matter of chloroform has been before our journals, and has been a good deal experimented on. Sometimes it answers nicely, as in your case; but at other times it does not. I do not know whether anybody uses it regularly now for introducing queens or not.

HOW TO PURIFY EXTRACTED HONEY; HONEY IN SODA-WATER.

Can you tell how to purify extracted honey, so there will not be any sediment? I could sell all my honey at a good figure to the bottling-works in Grand Rapids, for making a flavoring syrup for soda-fountains, but they fail in filtering it in any way so that it will be clear. They tried, but there would be a sediment of a darkish color that spoiled it for use. This is a matter of no little importance to the bee-fraternity, as it would make quite a demand for honey, and that to make a good temperance drink. Perhaps A. J. Cook or others could answer through GLEANINGS.

Grandville, Mich., Oct. 9, 1886. J. S. WARNER.

Friend W., straining your honey through the cheese-cloth which we recommend and sell for the purpose, we think will remove every thing that can be objectionable. If your honey is very thick, it will have to be warmed to pass through readily. But in case this straining should not be sufficient, you can filter it through a bag made of coarse flannel. The particles of flannel will catch every particle of the finest dust that may be in the honey. If Prof. Cook has had experience in straining and filtering honey, we should be very glad to have him tell us about it.

WHAT RENT SHOULD BE PAID FOR THE USE OF LAND FOR AN APIARY?

Would you please inform me what is customary to pay in establishing an apiary on somebody's else land? Does the owner of the bees give a share, or pay money? I am thinking of taking part of my colonies away from home, but do not know what would be right to offer. Does the owner of the land generally have any thing else to do but to watch the bees that they be not molested, for instance?

Greenville, Ill., Oct. 12, 1886. GUSTAVE GROSS.

Friend G., it is a pretty hard matter to give an answer to your question, or, in fact, any question of the kind. It all rests on circumstances so much that the best we can say is, "As the parties may agree." If the owner of the land proposes to watch the bees, and keep away thieves, he should have a little more pay on this account. If he also proposes to look after swarms, and hive them, then his pay should be still better. So you see it depends on how much responsibility each party proposes to take. Sometimes a pound of honey for each colony left on the premises is considered sufficient rent. If that is not enough, say two pounds or more, or even five pounds, where swarms are looked after, etc.

A TREATISE ON FLORIDA, AND ITS RESOURCES.

To those of your readers interested in Florida, I take the liberty to say, that altogether the best book that has ever been written about the State is

Dr. Smith's. Dr. Smith is professor of geology at the University of Alabama, and was a special-census agent of U. S. A. His report gives all the bottom facts about Florida—the geology, physical geography, constituents of soil, growth, elevation, rainfall, adaptation of soils to particular crops, drainage, etc. Of course, it does not give the details in regard to the honey product and some other things, such as are furnished you by Hart and others, but all the fundamental facts are there. It forms a part of the U. S. census. I do not know where a copy is to be had; but any one who wishes to know all about Florida ought to begin with it. J. A. GOREE.

Tuscaloosa, Ala.

QUEEN-CATCHERS, AND CLIPPING QUEENS.

I have used an implement similar to Klimitz's queen-catcher for some time. I am in the city, and it will not do to run over town to take swarms out of neighbors' yards or from the shade-trees in the streets, so I clip the queens' wings. To catch up the wings by the fingers, with the feet always in motion, and then clip the wing, risks too much; danger comes in of getting a foot with the wing. Letting the queen rest on the knee is not always safe either, so I have a small sack made of mosquito-netting, which I pass over the open end of the cage; and as the queen runs into the sack out of the cage, I have her in the sack with her tail toward the opening. I withdraw the cage, lay it down, and turn back the ends of the sack, holding the queen in the sack by her head and body with the left hand; as soon as the wing is exposed I clip exactly what I want, and then release her. It takes a little longer time, but it is sure, and not the least danger of injury does the queen incur, and this is the main point. The cage I have used has ragged wire edges, which catch the bag. Mr. K.'s cage is better.

HONOR TO WHOM HONOR IS DUE.

Give everybody credit, is my motto, if it doesn't cost too much. Let Mr. Heddon have credit for his hive—it is a good one; Mr. Jones for his—it is equally good; let Mr. Heddon have all the credit the pollen theory is worth, and let Mr. Clarke hibernate the bees. Let all the army of reversible-frame inventors be pleased with themselves, and last, but not least, let Mr. Perrine have the credit of being the "Father of Adulteration of Honey." I believe that is what he claimed at the late congress in New Orleans. All I ask is, credit for the money I send. S. C. BOYLSTON.

Charleston, S. C.

Friend B., your suggestion in regard to handling queens is good, but I think I should prefer to handle them with my naked fingers. They sometimes bite spitefully, it is true; but I am not afraid the queens will injure me, and I am pretty sure I shall not injure the queens. Your suggestions about giving credit are also good.

A LETTER FROM ONE OF OUR AUSTRALIAN FRIENDS.

I am interested a little in bees. I have ten hives. I commenced with one, a chance swarm, which came along in December, 1884; and since reading your A B C it seems more wonderful. You Americans can do almost any thing. I do not know that our country can produce honey like yours; but I have been told, since taking an interest in bees, of some of our farmers in the country districts having as much as six tons of honey in one season from bees kept in all sorts of boxes. Nearly all the native trees here blossom—gums, box, and acacia—and just now in winter I see the Tasmanian blue gum (*Eucalyptus globulus*) is coming into blossom, and will continue until August. I have two Woodbury and eight Langstroth hives, or the same size as your Simplicity hives. The Bee-Keepers' Society here decided on that size. I see you have the cold to contend with, but we do not get snow here, and there is not more than two or three days wet, or weather when the bees can not work, and I notice now they are busy bringing in pollen. Sometimes we have four or five fine sunny days; the geraniums and marigolds I see bloom all the year round. Ours is not one of the best places for bees. It is very open, or plain, and not many trees.

Braybrook, Victoria, Australia. WILLIAM DABB.

We think Australia is making rapid strides in bee culture. We have filled quite a number of orders from there for machinery, etc. Thanks for your kind letter, friend D. I do not see why Australia should not give as good results as America. Are you sure the capabilities of your country have been as fully brought out as ours have?

STINGLESS BEES IN AUSTRALIA.

A correspondent from Queensland sends us the following:

Your correspondent, Mr. Henry Stewart, is not quite correct in stating, p. 208, GLEANINGS, that the stingless bee is found only in South and North America, and not in the other continents; at all events, we have a stingless bee in Queensland in two varieties, very similar in appearance, but their nests and combs are different. I send you herewith a pressed specimen of the bee for microscopic examination. They are such insignificant little things that I hardly think it would ever be worth while to cultivate them. The whole yield of a large colony is only about a quart. Their combs are certainly not constructed of wax, although it looks much like it. I tried to melt up a lot once, but got only a dark-brown sticky mass, which, however, proved a source of immense attraction to the bees in my apiary; for although there was an immense profusion of honey-flowers at the time, they seemed to give them up entirely, and devoted their whole attention to carrying away the brown sticky mass, and plastering it all over the inside of their hives. As I didn't want it there, I buried it, and so forced them to go about what I considered a more profitable occupation.

As I have started writing I may mention a curious circumstance which has just happened in my poultry-yard. A tiger cat got in one night, and, for apparently the pure delight in murder, killed two geese, two ducks, and one sitting hen and one of her chicks, leaving five unprotected orphans. The mother had laid only about a dozen eggs before she commenced to brood, and she had a sister in the yard that was just about to begin to lay. Well, next morning this young pullet with her fiery-red comb commenced to cluck, cluck, like a brooding hen, called the chickens to her, brooded over them at night, and has, in every respect, performed a mother's duties to her nephews and nieces, although she has never yet laid an egg. Formerly, if one of the chicks came near her while they were being fed she would peck at them furiously, but now she won't touch a morsel till they are all fully satisfied.

What a pity we can't teach the bees to behave in a similarly charitable manner to their relations who happen to fall into misfortune or distress!

ÆNEAS WALKER.

Redland, Queensland, Australia.

Many thanks for the samples of stingless bees you send us, friend W. I will forward them to Prof. Cook. Meanwhile I would say to our readers that the bees are about the size of a common house-fly — perhaps a little smaller. If a whole colony yields only a quart, however, we shall have to regard them more as a curiosity than any thing of practical value.

REPORTS ENCOURAGING.

A GOOD REPORT, AND FROM TEXAS TOO; FROM 108 TO 150, AND 12,000 LBS. OF HONEY.

I HEREWITH send you my report of this season's operations with my bees. I commenced the season with 108 colonies in medium condition. The spring was backward, and they had used all of their honey before there was sufficient new honey coming in to support them. Swarming was cut off to a great extent, but I got an increase of 42 colonies by natural swarms. I had about 80 swarms in all, but I put back all afterswarms and prime swarms that came out after the 20th of April.

The honey-flow commenced about the 25th of April on guajilla and continued about 20 days; the last 8 or 10 days being from cat-claw. The cat-claw honey-flow was cut short over 2 weeks. It usually lasts over 3 weeks. A very small caterpillar webbed up and destroyed the blooms. There has been no surplus gathered since to amount to any thing. I have taken 5000 lbs. of comb honey in bulk, and 7000 lbs. of extracted honey. I have sold it all out; also about 1500 lbs. that I bought. I also took about 500 lbs. of 1-lb. sections. The summer and fall have been so dry that there is no chance for any more surplus this season. My bees will go into winter with plenty of stores, and strong in bees. Our county is about the best in the State, taking one year with another. I have been here 4 years, and there has been no failure of a honey-crop yet. There are so many different trees and plants that suit all kinds of seasons, that there is not much danger of failure.

4—D. M. EDWARDS, 108—150.

Uvalde, Texas, Oct. 9, 1886.

FROM 43 TO 56, AND 1600 LBS. OF HONEY.

I wintered 43 without the loss of one stand. I increased to 13, and got 1600 lbs. of honey. My bees are in good condition for winter, and are working heavy now.

B. J. WARDAN.

Plainville, O., Oct. 5, 1886.

$40.00 FROM ONE COLONY, BESIDES THE INCREASE OF THREE.

I started with 6 good swarms and 2 nuclei this spring. I increased to 30, and sold 5. I took 646 sections. My 25 remaining colonies are all good and strong, with plenty of honey. From one of my hives I sold $20.00 worth of bees and $20.00 worth of honey, and have 3 good colonies left which are worth $10.00 per colony, making $70.00 from one colony. Who can beat it? I got 18 and 20 cts. per lb. for my honey.

Connotton, O. CHARLES E. HARDESTY.

FROM 98 TO 128, AND 12,000 LBS. OF HONEY.

I commenced the season of 1886 with 90 colonies and 8 nuclei. I increased to 128, and have taken 12,000 lbs. of honey—11,500 lbs. extracted, and 500 comb. My honey is all sold; the average price 6 cts.

Shellsburg, Benton Co., Ia. ROBT. QUINN.

NOT LARGE, BUT SWEET.

My honey-crop was not large, but it is very sweet. I have 50 colonies, and have taken 1400 lbs. of nice section honey. Bees are in good condition, and well supplied for winter.

W. H. MARTIN.

Dunkirk, O., Sept. 20, 1886.

FROM 4 TO 9, AND 850 LBS. OF HONEY.

I had four colonies, spring count. I increased them to nine, and extracted 370 lbs. of light honey, 360 lbs. of dark, and 120 lbs. of comb honey. Total, 850 lbs., all very nice. I am feeding sugar for wintering.

ROBT. J. LATHERS.

Inkster, Mich., Oct. 2, 1886.

FROM 6 TO 11, AND 600 LBS. OF HONEY, AND BLACK BEES AT THAT.

I had six hives of blacks at the beginning of the present season. I increased to 11, and obtained about 600 lbs. of comb honey. There is no basswood in this country. Buckwheat sown for fall pasturage was a failure, and bees made no honey after Aug. 1st. I have wintered a few bees two winters, and lost none. I never fed any, and don't know how, nor have I protected them from cold in winter. The first winter I left the interstices between the top-bars open. Last winter I placed some rags in the upper story.

F. A. MINOR.

Marshfield, Mo., Oct. 5, 1886.

50 LBS. PER COLONY.

I do not see how I could get along without GLEANINGS. I think every one who keeps four or five stands of bees should take it.

As our honey season is over I will give you my report for 1886. I commenced in the spring with 40 colonies, and increased to 47. I worked for honey, not increase. I have taken 50 lbs. per colony, spring count, about an equal quantity of comb and extracted. I use the extractor to keep swarming down. Bees have made no surplus honey since the 15th of July. My bees have plenty of stores for winter. Honey is mostly all sold at 8 to 12½ cts. per lb., according to condition and quality. I sell my honey all at home. I make it my rule, when I sell to one of my friends, that, when he gets out, he will know where to come and get more.

Bucklin, Linn Co., Mo. J. W. SWITZER.

A GOOD REPORT FROM AN A B C SCHOLAR; 156 LBS. PER COLONY, AND 25 INCREASE.

I herewith send you my report for this season. I began with 8 swarms, in good condition, and two very weak, which were used for queen-rearing. From the above 8 swarms I received 1250 lbs. of honey—1170 lbs. in 1-lb. sections, and about 75 lbs. extracted, making 156 lbs. per colony. Besides this I now have 30 good swarms, of which I bought 5 swarms and gave one to our preacher and one to another neighbor, making 27 swarms in all. I attribute my success mostly to the teachings of your A B C book and GLEANINGS, which I prize very highly, and wish you the best of success. Honest endeavor is always crowned with success, which latter I wish you with all my heart, as I never found a squarer man to deal with than

A. I. Root. If hives and fixtures have any thing to do with my success I must attribute it to the Heddon-Langstroth hive, which I use exclusively. I had one swarm which was queenless from Sept. 28, 1885, until June 2, 1886, which makes it 9 months and over. It came through with about a pint of bees. 4—**Jno. G. Rundinger, Jr.**—30.

Kilmanagh, Huron Co., Mich., Oct. 18, 1886.

WHAT SHALL BE DONE WITH "THE OLD-FOGY FARMERS" WHO ARE BRINGING DOWN THE PRICE OF HONEY?

We have had a good honey season here, and it is of the best quality. The flow has been steady. I have 100 colonies to go into winter; about 2800 lbs. of my crop is disposed of; about 2500 lbs. on hand. I have not taken all off yet. Prices are ruling low. I think it would be a profitable subject for discussion to decide what we are to do with a "set of old-fogy" farmers and "grandmothers" who persist in running to town and selling their honey for whatever a grocer may offer them, thus ruining the market for those "in the business."

Duncan, Ill. **W. H. Graves.**

Buy up the honey, friend G., from all these good people, and thus prevent them from demoralizing the market.

MY REPORT FOR THE SEASON OF 1886.

I began with 8 hives of my own, and bought three box hives, which I transferred into Simplicities. I purchased two queens of Jos. Byrne, with ½ lb. of bees with each. I turned loose these two queens and their bees, each into a colony, after taking out old queens. One of these hives and its increase gave me 133 lbs. of honey, and increased to 3 good colonies. I took, in all, 963 lbs. of honey—527 lbs. of this in sections. This honey was taken on pasture that does not yield 20 lbs. on an average to box-hive men. I attribute this success to using your Simplicity hive and implements—a superior knowledge of our pursuit gained by reading, and last, but not least, plenty of hard *work* to insure success. 3—**S. S. Lawing**, 12—24.

Henderson, Webster Co., Mo., Oct. 21, 1886.

SWEET CLOVER; A YIELD OF 70 LBS. PER COLONY, FROM THIS PLANT ALONE.

I send you a branch and flower of a plant that has no name. It produces honey of an excellent quality. Our honey crop would have been almost an entire failure had it not been for this plant. It blooms twice a year, but seems to produce more honey in the fall than in the spring. I have 70 hives of Italian bees, and did not get a pound of surplus this year until this plant bloomed about August 20. I have had a yield of 70 lbs. of extracted, and 50 of comb honey per colony, from a flower that I know to be from this plant. I have been watching the honey-yield from it for years, and have concluded it is one of the very best honey-producing plants we have in this locality. It is very abundant here, but is confined to the hills and cliffs. It is never found in the prairies. I am satisfied the yield this fall would have been much larger had it not been so wet and cloudy during September. **J. P. Caldwell.**

San Marcos, Hays Co., Texas, Oct. 12, 1886.

Why, friend C., it is a little funny if the plant you send has no name. It is the common well-known melilot, or sweet clover. I am very glad indeed to get such a good report from it.

NOTES AND QUERIES.

THE MOSQUITOS IN TEXAS.

TEXAS, or some portions of it, have a hard time this year. Great storms on the gulf coast, great drought in the interior of the State, besides the great railroad strike in the spring. Yet some counties are exempt, and Brazoria is one of them, except from storms. The gulf shore suffered a good deal, but crops are good. Cotton and corn are good. It is reported from some parts that bees did not do well; but my report shows 50 colonies in the spring, 60 in October, and about 700 gallons of extracted honey—not so good as last year, but good enough for a bad year. At present we are having a serious time fighting mosquitoes. They are so bad we can't pick cotton or do any thing else here, and we have to build fires to make smoke for our horses, and to milk cows. The animals come to the smoke and stand with their heads right in it. The stock cattle are in great big herds, sometimes 2000 in a bunch, to keep fighting the above pests. **John W. Ross.**

Phair, Texas, October 10, 1886.

A DRONE-LAYING QUEEN.

I have a colony of hybrid bees that have raised all drones in worker-cells. I took all the brood-frames out about three weeks ago, and gave frames of empty comb; but they are still raising all drones. Now, is the queen worthless? or is it the fault of the bees? **M. Gumbert.**

Heathville, Pa., June 24, 1886.

[Friend G., you either have a fertile worker or a drone-laying queen. See A B C, under head of Queen-Rearing, p. 202. A queen that continues to raise drones only is worthless, and she ought to have been destroyed a long while ago.]

IS IT THE NAMELESS DISEASE?

What ails one colony of my bees? For one month the bees at one stand have been fighting little black slick bees, perhaps a little over half the usual size for a bee. It seems to me they must be bred in the hive, for they always look as if they were nearly starved. On dissecting them I find there is no honey in them. The colony is moderately strong. **William Pickett.**

Deming, Hamilton Co., Ind.

[I think the trouble is the nameless bee-disease, friend P. The shiny-black bees generally have an emaciated look, something like a big black ant, and they usually have a shaking, tremulous motion when they move about.]

TRANSPLANTING SWEET CORN.

Noticing your enthusiasm on gardening, I will just say I like very much to have early vegetables. I shelled a small ear of sweet corn, made a hole in my hot-bed, and covered it up, to sprout, but before I could get it planted it was one mass of green sprouts and roots. Not wishing to throw it away, I concluded, by way of an experiment, to set it out, and, as a result, I had nice sweet corn for my dinner the 1st day of July. **Mollie O. Large.**

Millersville, Ill.

[Thank you, friend Mollie. I am glad to know that you love garden vegetables as well as honey-plants, and that you have a hot-bed. Now, I am much inclined to think that it would pay to have a small patch of early sweet corn started in the way you suggest, in a hot-bed or greenhouse. We could be away ahead of the market, and get a big price to reward us for the trouble of transplanting. Since you suggest it, I think I shall have to try it on a small scale next season.]

JOBBING OUT HONEY.

I am just about to start on my annual trip to job out my honey-crop in the neighboring towns.

Maysville, Ky., Sept. 2, 1886. W. C. PELHAM.

CAN BEES UTILIZE OLD BITS OF COMB?

Why would it not be economy to let bees have the old honey-comb to render up wax for themselves, instead of rendering it ourselves, to sell for 20 cts. per lb.? ALMON HOLMES.

Douglas Center, Wis., Sept. 30, 1886.

[Bees do use up old bits of comb to some extent, but I believe they generally use the old wax mostly, in place of propolis. I have, however, seen new combs made entirely from old black wax, fixed up, or, rather, scraped off from the bottom-board. When honey is coming in plentifully, there is usually wax enough secreted to furnish all that the bees require in comb-building.]

DOES SEALING HONEY ALWAYS PREVENT CANDYING?

I should like to use some clear glass jars for extracted honey, but I find that, if the honey candies, its sale is much reduced, besides spoiling its appearance. I am positive that, if honey is sealed while hot, it will not candy, as I have some in Mason jars a year old. G. WIEDERHOLD.

Yonkers, N. Y., Sept. 15, 1886.

[The matter you mention is one of the contested points, friend W. Our experiments indicate that honey, perfectly sealed up as we do fruit, when it is heated pretty nearly to the boiling-point, never candies until the sealing is loosened. But others say that some samples of honey will candy any way, no matter how carefully it is sealed up. I believe the tendency now is in favor of clear flint-glass jars for holding honey.]

WHY DO THE BEES SWARM IN AUGUST?

The goods came in good shape. The sections are nice, the nails are very nice, the labels and rubber stamp just please me; in fact, every thing is all satisfactory. Mr. Root, can you tell me the cause of bees swarming at this time of year? The last week in August I had four swarms come out, which is something I never had nor saw before.

S. W. GREEN.

North Greenwich, N. Y., Sept. 6, 1886.

[Friend G., I think that swarming in August is owing to a good yield of honey, and may be the good yield of honey you have had is what makes you so well pleased with the goods we sent you. Your orders were filled just as we fill all of our orders. Still I am very glad to know the things you received from us were satisfactory.]

TOBACCO COLUMN.

MY brother, F. H. Chapin, of Hinsdale, N. Y., has started me in a limited way in the bee-business, furnishing me a nucleus of Italians. My experience with them thus far is to try to subdue their angry passions as far as possible; and by watching his movements I saw the *smoker* had quite a cooling effect; and he also, my next-door neighbor, informs me of your generous offer of one of those articles to the person who quits tobacco. After having been an inveterate smoker for a good many years, I have now gone without it for over a month, and think I can stand the storm, as I have now got so I can sleep well, which I could not do after first giving it up. Mark price, if I should later break the contract. In looking into the top of a hive recently, I discovered a good many little small black ants. What effect have they, if any, on the colony?

Ashtabula, O., Sept. 9, 1886. A. H. CHAPIN.

See Ants, A B C book, page 10.

ANOTHER FRIEND TAKES THE PLEDGE.

I have quit the use of tobacco. If it is any pleasure to you to give a smoker to any one to abstain from the use of it, I will gladly receive one from you, and promise to pay $1.00 if I commence the use of it again. JOE HEAD.

Trenton, La., Sept. 15, 1886.

HAS USED IT FOR 30 YEARS.

After having used tobacco for over thirty years I have quit it, and never intend to use it in any form as long as I live. If you will send me a smoker I shall be very thankful, and will pay for it if I ever resume the filthy habit. WM. FINLEY.

Palma Sola, Manatee Co., Fla., Sept. 13, 1886.

GOING SECURITY FOR A NEIGHBOR.

I sold bees to a neighbor. He has smoked since he was 12 years old. I persuaded him to stop, saying you would send him a smoker. He has promised to stop, or pay you for the smoker if he begins again. I will go his security. D. W. MOORE.

Pelham Union, Ont., Can., Sept. 1, 1886.

IN BEHALF OF A NEIGHBOR, AGAIN.

I again come to you for a smoker on behalf of a neighbor of mine, who is now going into the bee-business. He was an inveterate user of tobacco, and now for two weeks has quit. He wishes a smoker; and if he begins the use again he will pay for it, and I vouch for him. L. B. POLK.

Selden, Ohio, Oct. 5, 1886.

ONE MORE JOINS OUR RANKS.

I have made up my mind not to use tobacco again; and if I do I will pay you for the smoker.

Wheatland, Mich. A. W. SPENCER.

HAS USED IT FOR 20 YEARS.

My father, who is about 59 years of age, has been smoking for 20 years. He promises never to use it again, and asks you to send him a smoker. If he ever uses it again he will pay you for it.

Oriole, Pa., Sept. 12, 1886. G. W. CLARK.

HAS BROKEN HIS PLEDGE.

I am sorry to say that John Goodhull has already broken his pledge, and commenced chewing. I inclose the pay for smoker. He, while plowing for wheat with a three-horse team, and working hard while hot, thought he could not stand it.

Williamson, N. Y., Sept. 13, 1886. C. S. ADAMS.

I understand that you send a smoker to all persons who have quit using tobacco. I have quit; and if I use it again I will pay for it. A. B. HEISER.

East Germantown, Ind.

One of my neighbors, Crawford Lentz, has quit the use of tobacco, and wants a smoker. Mr. L. is one of our good men, and means just what he says. He will pay double for the smoker if he uses the weed again. JAS. W. ROSEBERRY.

Kent, Mo., Sept. 28, 1886.

"A LITTLE FRIEND" HAS QUIT TOBACCO.

A little friend of mine, seeing your promise to give a smoker to any one who would quit the use of tobacco, has quit it. It has been three months since he used any. His name is George Williams. He asked me to write for him, and have you send the smoker to me; and if he ever uses it again I give you my promise to pay you for it myself.

W. A. SISTRUNK.

White Sulphur Springs, Ga., Sept. 18, 1886.

OUR OWN APIARY.

THE CONDITION OF OUR BEES FOR WINTER.

IT is with some reluctance, coupled with no little regret, that I inform our readers the exact condition of our bees for wintering. They are not, to my notion, in the best possible condition for the coming cold weather. A large number of our colonies are weak; not only that, but a large number have no young bees—one of the prime essentials for successful wintering. You ask, "Why this state of things?" I will explain. In the first place, you are all aware that we have had foul brood pretty generally in our apiary. In our efforts to exterminate its ravages we have burned up something like three or four hundred frames of brood. Such a drain as this in our apiary has necessarily left many of our colonies with a great number of old bees. Up to date we have had 60 cases of foul brood. In many instances the taking-away of the brood and honey, followed by 48 hours of starvation, seemed to so discourage the bees that they were slow to overcome the shock. When the treatment was applied in July and August, they recovered in a great measure; but as by far the larger part of the diseased colonies were treated in September and October, few if any of said colonies commenced brood-rearing again, even after feeding. In a word, then, this means that about one-quarter of our colonies have nothing but old discouraged bees. Besides these, about one-fourth more are, well—nuclei on four frames. Again, you will ask, "Why not double these up?" This we have done in a few cases; but there are two reasons why we shall not double up all. In the first place, these nuclei have valuable queens, none of which we value less than $2.00, and some are worth much more. To unite these nuclei would leave one surplus queen. On account of foul brood we can not sell or otherwise dispose of her. It is true, we could cage and place her over a cluster of bees. She might live a month or possibly two months; but as the ball of bees changes its position in the brood-nest in cold weather, her majesty might be left high and dry where she and her eight or ten bees could enjoy (?) a good freeze by themselves. There are about fifty colonies in our apiary that would stand uniting very comfortably, but that would leave a surplus of 25 queens, worth about $50.00. Taking every thing into consideration, we prefer to risk the queen and their colonies as they are.

There is still another reason for not uniting more generally. I told father that, if I could have a spell of warm weather, by feeding to stimulate brood-rearing I *believed* I could start foul brood in many of the colonies. That is, the germs of foul brood are in many apparently healthy colonies; but in the absence of brood in October, the disease was not apparent. If this be true, to unite very extensively would be apt to spread foul brood all over the apiary.

Now I confess I have taken a rather discouraging view of this existing state of things. Let us look at the other side for a moment. Those bees have all been fed up on sugar syrup of the best kind. They had been allowed to consume most of their natural stores before being fed, and it may be possible that they have consumed their diseased honey, if they had any. Again they have been contracted on as few combs as possible, consistent with sufficient stores, and given good wheat-chaff packing—in short, the best care we know how to give them, and so we hope for the best.

FEEDING AFTER DARK, BY MOONLIGHT AND LANTERN LIGHT.

As I have before stated, in consequence of foul brood we have been obliged to exercise extreme caution to prevent robbing. While examining colonies during warm days we have used the bee-tent with excellent success; but to feed by the aid of the tent, sunny days would be quite inconvenient, and well nigh impossible. If we waited till cold weather, that would be too late; besides, the bees would then be little inclined to carry the feed into the combs. It so happened about this time, Oct. 12th to 15th, we were having beautiful evenings, the moon being full at this date. The apiarist and myself availed ourselves of this opportunity, and fed all such colonies as were needy. We could not have had a lovelier time, no robbers to bother us or follow our feeding-cans about. We fed in this way about two barrels of sugar made into syrup. After the 15th, the moon did not come up till about 9 o'clock; and then as the bees still needed more feeding we were obliged to use artificial lights. As lamps go out too easily, we used lanterns. I gave the apiarist my large lantern, and then mother and I hunted around in the house till we found what we call Huber's lantern. I believe they are called "babies' lanterns." That was so insignificant I hardly thought it would do.

"But," said mother, "this is all we have in the house."

"Well," said I, "fix it up the best you can, and I'll try it."

I will explain to our readers, that the lantern in question is about 7 inches high, with a very small burner—a sort of lantern and night lamp combined. After I had worked awhile in the apiary I decided that it was just the thing. It was so small that it could be set down on top of the frames of the hives, or on a ledge of the hive. Its smallness, and, consequently, its using so little room, is why it is superior to the other lantern for night work in the apiary. We fed with lanterns about two barrels of syrup, and I do not think the lanterns caused us any more trouble than smokers in the day time. Not only did I do feeding by this kind of light, but I hunted queens, and performed various other little manipulations with the hives. Of course, on cool and chilly evenings it would not be policy nor even an advantage to work with the bees; but at that time of the year, when robbers are most troublesome during the hours of the day, a great many of the operations connected with the apiary can be performed easily and safely in warm clear evenings by moon light or lantern light. In the A B C of Bee Culture, under the head of "Robbing," the author lays special stress upon the fact that bees can be handled in the night time; but for some reason but few reports of it have come in, and those, I believe, of unfavorable character. The A B C recommends the use of a lamp and shade. As a lamp would require such careful handling, and besides would be likely to be blown out by a little breeze, I think a lantern would give results entirely satisfactory. If, then, our friends will use a lantern (which will stand tumbling about and all kinds of winds), I think they will find certain kinds of night work in the apiary a success. It is quite likely, on the first evening, if you try it, you will not look favorably upon it; but further trials, I think, will convince you that it is a nice time to do certain kinds of work.

Before closing this subject, let me say that the beginner with three or four colonies will probably never have occasion to resort to night work; but the extensive apiarist will find it a great convenience many times.

HANDLING BEES IN THE RAIN.

One day, while the apiarist and myself were working in the apiary, it began to rain—not very hard, but enough to drive all flying bees in, and to render the use of the tent unnecessary. As there was "lots of work to do" I said to Mr. Spafford,—

"If you are not afraid of the rain, I'm not. No robbers will bother us now, and we can just 'smash through' the work."

"All right," said Mr. S., with his usual pleasant manner; he always acquiesces when a new scheme is proposed.

We had on rubbers and old clothes, and so did not mind the wet. Although it rained nearly all day, we accomplished a good deal of work. We kept up a brisk circulation, and at night changed our clothing. On one or two other days we worked in the rain, but put on our gossamer coats. These, with suitable hats and rubbers, kept us nice and dry.

"How about the smoker-bellows?" perhaps you inquire. Our Clarks have been pretty well soaked once or twice, but I do not see but that they work just as well as before. "How about the bees?" possibly a beginner asks. Just as they always do—if any thing, a little more passive. It is a well-known fact, that, during a hard wind and rain storm, when a hive-cover has been blown off, the colony may be drenched, and no harm result to the bees.

I think hereafter, when a little rain comes and I have some work among the bees I want to do, I will put on a gossamer and rubbers, go about my work as before, and let it rain.

If I were to moralize upon this point I would say that any man who would be driven indoors from his work by a light rain ought not to obtain a full measure of success. Of course, if one is consumptive, or it be a heavy rain, then the circumstances are altered; and in either event it would be wise to seek shelter. But I said I wouldn't moralize, and Barney says my space is growing small, so I will leave you to reflect upon what good things I *might* have said.

FOUL BROOD UP TO DATE.

There is no foul brood in the apiary, nor has there been any for the last ten or fifteen days. If it were not this particular time of the year, we should feel that we had entirely eradicated the disease; but as brood-rearing has wholly ceased in all the hives, with a few exceptions, there is, in fact, nothing for the disease to work on. **Ernest.**

P. S.—As regards the appearance of foul brood, W. Z. Hutchinson's description of it (see p. 845) is *exactly* right. At least that is what our foul brood looked like. E. R.

The annual meeting of the Madison County (N. Y.) Bee-Keepers Association will be held at the Eagle Hotel, Oneida, N. Y., Wednesday, Nov. 17, 1886. A very interesting meeting will be had; all members, and those interested in bee culture, are requested to be present, as important business will come up for consideration. Officers for the ensuing year will be elected. The important topic—"How to make the business pay in a poor season like the one just past," will be carefully considered and discussed. All are invited to bring articles pertaining to bee culture for exhibition. F. L. Smith, Pres.
Oneida, N. Y.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

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For Clubbing Rates, See First Page of Reading Matter.

MEDINA, NOV. 1, 1886.

Let all things be done decently and in order.—I. COR. 14 : 40.

We have, at this date, Nov. 1, 5979 subscribers.

OUR EXCHANGE DEPARTMENT FOR ADVERTISERS.

Inasmuch as many have called attention to the fact that our Exchange Department is being used for regular advertisements of things for sale, we think best hereafter to have that department devoted exclusively to articles for *exchange*—not for goods offered for sale in the regular way, and we greatly prefer that the friends would cut them down to five lines each and no more.

NO BROOD IN NOVEMBER.

Don't be alarmed, A B C friends, if your queens do stop laying during this month; in fact, it would be the exception if you do find brood; therefore you need not be in haste to call them queenless. Almost all colonies cease brood-rearing during October, November, and December. Very strong colonies, abundantly supplied with stores of every kind, many of them will commence brood-rearing about the first of the year, and it will then be kept up, as a rule, until spring.

BASSWOOD-TREES, GRAPEVINES, RASPBERRIES, ETC.

Perhaps there is no better season in the year for planting out the above, than this present month of November. We have a beautiful lot of basswood-trees growing on our cultivated and enriched soil. They have made a wonderful growth this season, and the roots are immense.

Our supply of Concord grapevines for shading bee-hives is not so large, but what we have are extra nice vines. This same cultivated and enriched soil has given us some extra nice Gregg raspberry roots. The Gregg and the Cuthbert are, perhaps, the most promising for both honey and fruit. We can furnish extra strong roots, 10 for 60 cts., or 100 for $3.00. If wanted by mail, 3 cts. each extra. For prices of grapevines and basswood-trees, see our regular price list.

ERNEST'S TEMPEST LANTERN.

After reading what Ernest has to say about working by lantern light in feeding bees, it occurred to me that you might like to know that the lantern he takes such a liking to is on our 50-cent counter. As they are quite small, I think there will be no trouble about sending them by mail at an expense of 10 cents extra for postage. At any rate, I will guarantee safe delivery at the above price. No accident can possibly happen to these lanterns, for they are made entirely of brass, and the oil-reservoir is filled with cotton. If you should drop it and step on it you might spoil your lantern, but you could not easily set any thing afire. They are made expressly to use in barns and stables. Fill the lamp with a heavy kerosene of good quality. They are not only safe, but they are durable and cleanly. No accumulations of smoke at the top can stop the draft.

LETTERS, FIGURES, ETC., BUILT IN HONEY-COMB.

At the Indianapolis Convention there were some exhibits in this line, probably superior to any thing that has ever been produced before in the world. Large letters that all could read the whole length of the great hall were beautifully worked out in honey-comb of pearly whiteness; also the figure of a mammoth queen-bee; and, astonishing though it may seem, words written in penmanship, even to the hair-strokes, were composed of honey-comb built by the bees. I believe the work was done by Mr. A. Cox, of White Lick, Boone Co., Ind. The exhibit of honey in globes, honey in the form of crosses, and honey in almost every shape imaginable, was wonderful. One end of the hall was literally filled with devices and implements. I do not know whether it suggested to Bro. Newman his museum or not; but it reminded *me* vividly of our museum.

FOUL BROOD; IS IT CONTAGIOUS?

At the Indianapolis Convention, one of the bee-friends related the following: He found three colonies in his apiary, affected with foul brood. Not knowing just what to do, he decided to look the matter up and treat them according to the most approved methods. Meanwhile the honey-flow stopped, leaving him with a large number of partly filled sections. In order to finish these sections he decided to extract a lot of honey from his heaviest hives, and feed it back; and before he knew it he had unconsciously or heedlessly extracted the honey from some combs in one of these foul-broody hives. The lot of honey containing some from this diseased colony was fed to 28 colonies before he became aware of what he had done. Now, then, what do you suppose happened? Why, every one of the 28 hives thus fed became at once diseased. I tell you, my friends, I would not go to bed, knowing that I had in my apiary a colony that had the real foul brood. Burn up the combs, brood, and honey, and do it in such a way that not one solitary drop or fraction of a drop of honey escapes where a bee may get a lick at it.

SENDING POSTAGE-STAMPS IN LETTERS.

We can always use postage-stamps where they are more convenient, and we can use them of any denomination, providing you do not stick them fast to your letters. The clerk who opens the mails insists that some of you are thoughtless enough to paste them right over the reading-matter before you send them off. We suspect, however, that it is not so bad as that, but that you are a little careless in putting them in the letter, as they are often sticky in warm weather. Do you wonder we sometimes get cross when we have to soak the letters in water over night in order to get the stamps loose? and then we have to put on some more gum before we can use them. Well, we don't mind this trouble very much; but when the water blots your letters so they can not be read without a good deal of fuss and trouble, we sometimes feel as if we should get mad, if it were not for the fact that we are Christian people here, and don't dare to. Now, then: When you send stamps again, please wrap them in a separate piece of paper, without any writing on it; and if it is not asking too much of you, don't wrap them up when they are sticky. Lay them somewhere in the sun, and let them dry first.

A NEW BEE-KEEPERS' MEDLEY.

Mr. E. O. Tuttle, of Bristol, Vt., has been, for some time back, busy in getting up a new medley of bee-keepers. The size is 8½×11 inches, and it contains pictures of 120 bee-keepers. A large portion of them are the same as appeared in our medley, published some ten or twelve years ago. Some of the pictures are very good, and a few of them are rather poor. The medley, however, ought to be well worth the sum of $1.00 to any one who is in the habit of reading our bee-journals. Among them we notice S. Corneil, R. McKnight, J. B. Hall, D. A. Jones, and W. F. Clarke, of Canada; in the United States we have Henry Alley, John Aspinwall, A. J. King, T. G. Newman, R. L. Taylor, Dr. C. C. Miller, Charles Dadant and son, H. D. Cutting, W. Z. Hutchinson, J. E. Pond, N. W. McLain, O. O. Poppleton, E. M. Hayhurst, L. C. Root, Mrs. Jennie Culp, Mrs. Chaddock, Mrs. Harrison, Oliver Foster, I. R. Good, M. H. Hunt, Norman Clark, P. L. Viallon, W. S. Hart, O. M. Blanton, and others. In the above list I have not intended to name those that are contained in our old medley. A descriptive pamphlet of 14 pages accompanies the photograph. They may be ordered from this office, or from friend Tuttle, as you choose.

HALF-POUND SECTIONS IN ENGLAND.

We find the following in the *British Bee Journal* for Oct. 14, under the title of "six-penny sections."

> SIX-PENNY SECTIONS.
>
> One of the most striking features of the show of Canadian honey at the Colonial Exhibition is the thinness of the sections exhibited, being only 1½ inches, the combs built therein being of worker thickness. Mr. Jones assures us from his own experience,—and it would be a bold British bee-keeper who would venture to compare his own with that of Mr. Jones,—that, contrary to what might be expected from the fact that three vertical surfaces (midrib and two sealings) are required in each inch instead of three in each 1½ inch, a larger harvest is obtainable of this thickness than of the greater thickness to which we are accustomed in the ordinary two-inch sections.
>
> In our issue of March 1, 1885, in an article entitled "Sections, Past, Present, and Future," we suggested the very same idea, pointing out that, by adopting the size of 4¼ x 3¼ x 1½, we could obtain sections of nominal half pound, which could be sold retail at sixpence each. The Canadian sections are as nearly as possible this size. We went on to say, "We venture to think, that, before many seasons are passed, a six-penny, or ½-lb. section, will be a recognized size."
>
> The British bee-keepers did not take to the idea, probably because the dealers could not supply the sections, and would not order them. Our Canadian cousins, however, took the hint; and while some of us are complaining of the slow sale of 1-lb. sections at 1 shilling, and have altogether neglected the nimble sixpence, they have been producing these pretty little sections, and here they are before our eyes. When we now see the very thing which was suggested to us in our own journal eighteen months ago, and hear that actually a larger harvest can be obtained in that form, it comes upon most of us as a complete revelation. We repeat, with great confidence, our prediction of March, 1885, and look forward to its fulfillment before another year has passed.

The show referred to by the editor took place Oct. 6. From the reports of the association I judge it must have been extremely interesting, especially as they had our good friends D. A. Jones, S. Corneil, McKnight, and others, of Canada. During the association friend Jones gave them a description of the Heddon hive. We notice there were present at the meeting, Wm. Raitt, of Scotland, and some from Switzerland. Of course, friend Jones had to have some fun going on, even if he was among long-titled people, and he improvised the following stanza:

Canada is a great country for honey;
It is there farmers and bee-keepers make lots of money.
Our bees extract nectar from flowers so sweet,
That all nations consider our honey a treat.

BEE - KEEPER'S GUIDE;

Or, MANUAL OF THE APIARY.

13,000 SOLD SINCE 1876.

14th THOUSAND JUST OUT!

10th THOUSAND SOLD IN JUST FOUR MONTHS!

5000 Sold Since May, 1883.

More than 50 pages, and more than 50 fine illustrations were added in the 8th edition. The whole work has been thoroughly revised, and contains the very latest in respect to bee-keeping. It is certainly the fullest and most scientific work treating of bees in the World. Price, by mail, **$1.25.** Liberal discount to dealers and to clubs.

A. J. COOK, Author and Publisher,
13-23 Agricultural College, Mich.

SAY! the **ACME PAPER-HOLDER** holds all sorts of small things, as papers, letters, almanacs, magazines, pamphlets, cards, etc., and does it quick, before they get lost, stolen, blown away, or the baby gets them. By mail, 10c.; two, 15c.; five, 25c.; twelve, 50c. Agents wanted.
Address **N. E. JOHNSON, Medina, O.**

SOUTHERN HEADQUARTERS

FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address
5tfd **J. P. H. BROWN, Augusta, Ga.**

IN order that I may pay off my debts, and devote my whole time to preaching the gospel, I offer my entire apiaries, consisting of about 90 colonies of Italian and hybrid bees, 60 empty hives, 3 extractors, and other bee-supplies, for sale at a great sacrifice. Persons wishing to buy would do well to correspond with me *immediately. I must sell.*
JAS. ERWIN.
21tfd Smith's Grove, Warren Co., Ky.

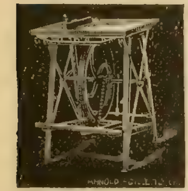
COMET

379 VARIETIES FRUIT TREES

Vines, Plants, etc.

Apple, Pear, Peach, Cherry, Plum, Quince, Strawberry, Raspberry, Blackberry, Currants, Grapes, Gooseberries, &c. Send for Catalogue
J. S. COLLINS, Moorestown, N. J.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7 inch cap, 100 honey racks, 500 broad frames, 2,000 honey-boxes and a great deal of other work. This winter we have double the amount of bee hives, etc., to make and we expect to do it all with this Saw. I will do all you say it will." Catalogue and Price List Free. Address W. F. & JOHN BARNES, 68 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

Oldest Bee Paper in America—Established in 1861.

AMERICAN BEE JOURNAL,

16-page Weekly—$1.00 a year.

Sample Free. THOMAS G. NEWMAN & SON,
925 West Madison Street, Chicago, Ill.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

THOROUGHBRED fowls, Brown Leghorns, S. S. Hamburgs, W. C. B. Polish, P. Rocks and Wyandottes, Bonney's, Forbes', Hawkins', Wilcox & Fultz' strains. We will sell for cash, or exchange for fdn. and beeswax. Price list free.
18-19tfd A. H. DUFF, Creighton, Ohio.

25 STANDS of Italian bees for sale in new chaff hives at $7.00, in good shape for winter.
20-21d JOHN C. STEWART, Hopkins, Mo.

WANTED.—To exchange my Given fdn. mill, good as new. I will take honey, or good winter apples for it. L. BECKWITH, Berlin, Wis.

WANTED.—To exchange strawberry-plants, six varieties, for untested queens.
20-21d J. A. GREEN, Dayton, Ill.

WANTED.—To exchange for extracted honey, 5 chaff Eclectic hives, just as good as new, or for cash, at $2.00 each—a bargain.
20-21d F. HOLTKE, Carlstadt, N. J.

WANTED.—Honey, extracted preferred, in exchange for hives, frames, section boxes, saw-mandrels, and bee-hive machinery. What have you got, and what do you want for it?
20tfdb D. S. HALL, So. Cabot, Vt.

WANTED.—To exchange for cash, or good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

FIRE! Fire! Fire! Brother bee-keepers, you all want my LIGHTNING FIRE-KINDLER, costing about the same, almost as necessary, and but little more trouble, than matches. Perfectly safe. No litter. Time, temper, and match saving; household convenience. It makes a fire immediately. Lasts a lifetime. Just the thing for your smokers when made one-fourth of the common size. Sent by mail for 20 cts.
20tfdb S. S. BUTLER, Los Gatos, California.

WANTED.—To exchange fine bronze turkeys, Brown Leghorns, or American silver watch, 3-ounce case, cost $18.00 when new—No. 1 time-keeper, for ferrets.
21d CHAS. McCLAVE, New London, Ohio.

WANTED.—To exchange bees for land south of the Ohio River. Also for sale, about 120 lbs. of wax and a six-inch Pelham fdn. mill.
M. J. HARRIS, Clay City, Clay Co., Ill.

WANTED.—To exchange for extracted white clover or basswood honey, one foot-power saw; also one Pelham foundation-mill, with dipping-tank, etc., nearly new. W. S. WRIGHT,
21tfdb 365 W. Van Buren St., Battle Creek, Mich.

$2800 will buy the Alderbrook poultry-farm and apiary ground, 30 acres of good land, cozy house, barn, and poultry-house, all new, pure spring and running water, fronting on beautiful pond, 2 miles from R. R. A delightful home; terms easy.
J. E. DARROW & SON, Box 250, West Eaton, N. Y.

BEE-HIVES,

One-Piece Sections, Section Cases, Frames, &c.,

OF SUPERIOR WORKMANSHIP, FROM

SMITH & GOODELL,

Manufacturers of and Dealers in

APIARIAN SUPPLIES,

ROCK FALLS, WHITESIDE CO., ILL.

3tfd *Send for Price List.*

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DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., G. B. Lewis & Co., Watertown, Wis., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

4 H.-P. ENGINE FOR SALE.

A Bargain for the man who is in need of a First-Class Engine and Boiler.

This is one of B. W. Payne & Son's Eureka engines, the same that we advertise in our catalogue. It has run 3 months since it was new; has had a 10-foot galvanized-iron smoke-stack added, and is in perfect running order. The man who is holding it had to put in a larger one to meet the demands of his trade. The price of a new engine and boiler complete, no stack, is $275.00; but to make a quick sale we will sell this one with the stack for $225.00, free on board cars at Higginsville, Mo.

A. I. ROOT, Medina, Ohio.

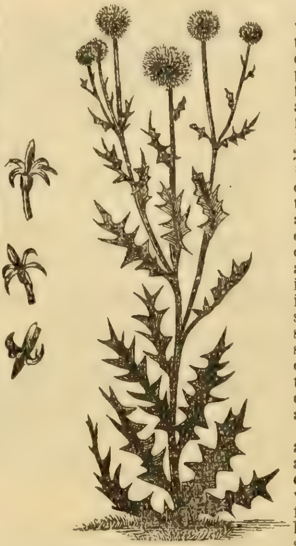
MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 11fdb

The Chapman Honey-Plant.



In accordance with a previous notice in bee-periodicals, I am now prepared to fill orders for the seed of the above plant at the following prices: ½ oz., $1; 1 oz., $2; 2 oz., $3; 4 oz., $5; ½ lb., $8. One oz. contains from 1600 to 1800 seeds. On account of extreme drought my stock of seed is limited, and persons ordering will be served in rotation. The seed should be sown in the early spring, and general directions for cultivation will be given on each package.

This plant is not an obnoxious weed, and is as easily eradicated as clover. Having carefully watched its habits of growth, and its honey-producing qualities for the past six years, I believe those who commence its cultivation in a liberal way will be better pleased than by commencing with a small quantity of seed. It has been tested by prominent bee-keepers all the way from Vermont to Nebraska and Ontario. We refer to the report of the committee appointed by the North-American Bee-Keepers' Association held at Detroit in 1885. The committee reported at the Indianapolis, Ind., convention held Oct. 12th to 14th, and their report will be found in all bee-periodicals publishing the report of that convention.

Write all orders plainly, and give your postoffice address in full.

H. CHAPMAN,
Versailles, Cattaraugus Co., N. Y.

HOW TO RAISE COMB HONEY.

Price 5c. You need this pamphlet, and my free bee and supply circular. 18tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

BEES. QUEENS.

SOUTH FLORIDA.

Carefully reared from **BEST IMPORTED.**

Italian queens (purely mated)	$1 00
" " (crossed or hybrid)	40

Nuclei, one L. or S. frame, $1.00. Add above price of queen. Also nice large yellow home-bred queens, $1.00. *Discount on larger orders.* 19-6db

LUTHER GRAY, Orlando, Fla.

40-Horse-Power Engine for Sale.

Our new automatic cut-off 90-horse-power engine is now driving the machinery in all our buildings. Now, we want to dispose of our old 40-horse-power engine which has done such faithful work for us for the last eight years. It is a standard plain engine, Lord & Bowler make, 12x20, with a 9-foot balance-wheel and a 6-foot fly-wheel. We will offer it, put in good repairs, for $350.00. We will throw in the stone upon which the bed-plate is bolted, free of charge. For further particulars, write us. Whom shall we hear from first?

A. I. ROOT, Medina, Ohio.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column 3btfd

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The market is good for all grades, and sales are large, receipts are very good, and prices are steady with a firm feeling.

White clover,	1-lb. sections	13@14
" "	2-lb. "	11@12
" "	½ lb. "	14@15
Dark	1-lb. "	10@12
"	2-lb. "	9@10
California,	2-lb. "	9@11
Extracted,	white clover	6@7
"	dark	4@5
"	white sage, California	5½
"	amber "	5
Beeswax,		20@22

Nov. 10, 1886. CLEMONS, CLOON & CO.,
Cor. 4th and Walnut St's, Kansas City, Mo.

BOSTON.—*Honey.*—Honey is selling well, but would sell better if weather were colder. No change in prices. BLAKE & RIPLEY,
Nov. 10, 1886. 57 Chatham St., Boston, Mass.

NEW YORK.—*Honey*—Comb honey is not moving as fast as we expected, which is probably due to the warm weather we have had of late. Now the weather has set in cold, and we expect an increase in the future. California extracted, white sage, and sumac honey is moving off rapidly at unchanged prices. THURBER, WHYLAND & CO.,
Nov. 10, 1886. Read and Hudson Sts., New York.

ST. LOUIS.—*Honey.*—We have nothing very encouraging to offer on honey. This month, California parties have been here with lots of comb honey, selling at 10½@11c, and some outside parties are selling white clover in 1-lb sections at 11½@12½c. Common comb honey, original packages, 9@11; southern extracted or strained honey, bbls., 3@4; choice in cans, 5½@6c. *Beeswax*, as it runs, 20c; selected, 23. Trade is dull in general.
M. B. WESTCOTT & CO.,
Nov. 10, 1886. 108 and 110 Market Street.

CHICAGO.—*Honey.*—Sales have been better during the past two weeks than at any time during the past season. But prices are, if any thing, lower; 10@11c for good white honey; 12@13c for fancy, in less than one-pound frames. Extracted, dull, at unchanged figures. *Beeswax*, in fair demand at 23@25c. R A BURNETT,
161 So. Water St., Chicago, Ill.

CLEVELAND.—*Honey.*—The market continues dull for all grades of honey, and prices a trifle lower. Best 1-lb. white honey is selling at 13@13; 2 lbs., 10@11. Dark and old stock not wanted. Extracted holding at 6c, but no sales. *Beeswax*, 25c.
Nov. 9, 1886. A. C. KENDEL,
115 Ontario St., Cleveland, O.

MILWAUKEE. — *Honey.* — This market continues very steady on prices for honey, and demand only fair. Choice white comb, in 1-lb. sections, 12½@13; same in 2-lb. sections, 12@12½. Extracted, in one-half barrels and kegs, white, 6½@7; same in bbls., white, 6c; in bbls., dark, 5@5¼. A. V. BISHOP.
Nov. 10, 1886. 142 W. Water St., Milwaukee, Wis.

CINCINNATI.—*Honey.*—There is a lively demand for table honey in square glass jars, and the demand for nice comb honey is very good. Demand from manufacturers is slow for dark grades of extracted honey. The range of prices for extracted honey is 3@7c per lb. on arrival.

Nice comb honey brings 12@15c a lb. in a jobbing way. There is a good home demand for *beeswax*. We pay 20@23c a lb. on arrival.
CHAS. F. MUTH & SON,
Nov. 10, 1886. Cincinnati, Ohio.

FOR SALE.—White-clover comb honey in Root's 48 1-lb. cases, at $5.00 apiece, case included, and delivered at depot, on receipt of cash. G. S. FOX,
Mitchellville, Polk Co., Ia.

FOR SALE.—Having harvested 30 bbls. of honey, I offer to dispose of what is left at 6½c net (barrels average 530 lbs.). The bulk of this lot is clover honey. Those who order first have choice of variety.
H. W. FUNK (Box 1156), Bloomington, Ill.

FOR SALE.—500 lbs. white-clover honey in 1-lb sections, put on board cars here in nice glassed (Heddon's 12-lb.) cases for 14c per lb. ready to ship on receipt of orders. G. O. ANDERSON,
Marshville, Oceana Co., Mich.

NEW YORK.—*Honey.*—Sales of comb honey the past month have been good, and prices fair. Honey from the West is coming in more freely than was anticipated earlier in the season. Present quotations are as follows: Fancy white, in 1-lb. sections, in neat and clean packages, 13@15c; same in 2-lb. sections, 11@12c. Fair to good, in 1-lb. sections, 11@13; same in 2-lb. sections 9@10. Buckwheat in 1-lb. sections, 9@10; same, in 2-lb. sections, 7@8½. Extracted, white-clover, in kegs and barrels., 6@7; white Cal., in 60-lb. cans, 5@6; Cal. comb, in 60-lb. cases, 10@14. McCAUL & HILDRETH BROS.,
34 Hudson St., cor. Duane St., N. Y. City.
Nov. 13, 1886.

WONDERFUL!!

Owing to the reduction in subscription price to 25 Cents, on and after Jan. 1, 1887, we are able to make the following wonderful offer. We will send

BEE-KEEPERS' MAGAZINE
—AND—
GLEANINGS
One Year for $1.10.

For only 10 cts. more than GLEANINGS you can obtain the BEE-KEEPERS' MAGAZINE, whose price this year was $1.00. Send for sample, and see what a splendid magazine we publish. Sample free.
Address **BEE-KEEPERS' MAGAZINE,**
22tfdb BARRYTOWN, N. Y.

L. C. ROOT

Offers **For Sale** one of the best locations for bee-keeping in the United States. Facts which will be furnished on application will prove this to be a rare opportunity.

Please investigate these advantages. Health demanding a change of climate, reason for selling. Apply soon. Address
L. C. ROOT, Mohawk, N. Y.

NOW READY.

Photographs of all the principal bee-keepers, including Langstroth, Newman, Root, King, Heddon, Demaree, McLain, Stanley, Given, Van Deusen, Mrs. Harrison, etc., 120 pictures, name under each, size 11x14; $1.00 by mail. Fifty of the principal ones, larger, on same size card, same price. 22d E. O. TUTTLE, BRISTOL, VT.

SAY! the **ACME PAPER-HOLDER** holds all sorts of small things, as papers, letters, almanacs, magazines, pamphlets, cards, etc., and does it quick, before they get lost, stolen, blown away, or the baby gets them. By mail, 10c.; two, 15c.; five, 25c.; twelve, 50c. Agents wanted.
Address **N. E. JOHNSON, Medina, O.**

UNTESTED QUEENS reared from best imported.
N. ADAMS, Sorrento, Orange Co., Fla. 22-24db

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfbd

ATTENTION!
Dealers and Manufacturers

We are prepared to supply you with sections for the coming season at bed-rock prices. Write us.
21tfdb **G. B. LEWIS & CO.,**
WATERTOWN, WIS.

GLEANINGS IN BEE CULTURE. DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XIV. NOV. 15, 1886. No. 22.

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PUBLISHED SEMI-MONTHLY BY
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ADULTERATING COMB AND LIQUID HONEY.

IS THERE SUCH A THING AS MANUFACTURED HONEY AND MANUFACTURED EGGS?

THE following letter was forwarded to us through the kindness of the publisher of the *American Grocer*, with an expression that I should answer it for publication:

> *Editor American Grocer:*—Will you be kind enough to give me information about manufactured honey, if there is such a thing? I think you have published articles on it in your paper, but I have failed to see them. If you will give me the numbers of your paper that have contained the articles, and where I can get them, or answer this through your paper, you will oblige. Also, is there such a thing as manufactured eggs? J. H. WHITE.
>
> Bridgeport, Ct., Oct. 26, 1886.

In response to the above request we sent the following reply, which was in the *American Grocer* for Nov. 11:

We are very glad indeed to answer the portion of the above that refers to our branch of agricultural industry, especially as the honey-business is getting to be a branch of no mean pretensions. When liquid honey sold at from 20 to 25 cents per pound, and glucose, or corn syrup, was worth only from 5 to 6 cents per pound, there was a great temptation toward adulteration; and eight or ten years ago it was probably a fact that a great portion of the liquid honey in glass jars and tumblers to be found in our markets, was more or less adulterated. Now, however, when liquid honey is sold at from 8 to 10 cents retail, and 5 to 7 cents wholesale, there is but little inducement to adulterate with glucose, especially as the quality of glucose at all fit for the purpose is worth from 4½ to 5 cents per pound. On this account I believe there is but very little honey to be found on our markets now that is adulterated. Perhaps I may add, that a good many mistakes and a good deal of uncharitableness have arisen from the fact that both pure honey and pure glucose (or corn syrup) are, chemically speaking, pretty nearly the same thing; namely, grape sugar—glucose being grape sugar manufactured expressly for the purpose of making it retain a permanent liquid form. In California, excellent honey is now sold in quantities as low as 3 cents per pound. This state of affairs makes it more feasible and more likely that glucose should be adulterated with honey, than that honey should be adulterated with glucose. The present low prices of cane sugar, also, have been discouraging to those engaged in adulterating sweets.

Bee-keepers have also been accused of feeding their bees glucose, and then taking it from the combs and selling it as honey. This foolish piece of slander on our bee-keeping brethren was probably first started by some one who did not even know that bees do not *make* honey—they simply *gather* it. The act of storing it in the cells does not change it in any respect. If you feed the bees sugar syrup, it will be sugar syrup when it is taken away from them. The same is true of glucose or any other substitute for honey.

We now come to artificial comb honey.

The only way in which it is possible to put a spurious article of comb honey on the market would be by feeding the bees glucose or some other substitute for honey; and there would be a greater probability of this being done, because comb honey usually commands a half more in price than liquid honey, were it not for the fact that the bees must consume a very large quantity of honey or other sweets to enable them to secrete a very small quantity of white wax from which the comb is made. This latter fact has been so well proven by the experiments of hundreds of bee-keepers, that the practice of feeding liquid honey, in order to make the bees store comb honey, is now, I believe, universally abandoned. As an illustration: When the honey season closes in the fall, most bee-keepers find themselves in the possession of more or less sections of nice, marketable comb honey, with cells not quite finished. A large apiarist frequently has a ton or more of such unfinished sections. A little feeding would enable him to finish these out, put them on the market, and get his cash, instead of waiting a whole year to have them finished. On this account it would be extremely convenient to feed enough pure honey to get them finished. Well, *sometimes* this will pay; but we have all found out that so large a quantity of honey must be given to the bees to get just a little put back into these unfinished combs, that even this has been mostly abandoned.

Our last point is in reply to the newspaper statements that were so widespread a year or two ago, to the effect that our comb honey on the market was made by machinery, and that neither comb nor contents ever came from a bee-hive. So widespread was this falsehood, that in our journal of Nov. 1, 1885, page 738, I offered $1000 to anybody who would tell me where such spurious comb honey was made. No one has ever given the information, neither has one ounce of manufactured comb honey ever been forthcoming. It is a mechanical impossibility, and will, in my opinion, remain so. It is true, bee-keepers use largely what we call "comb foundation;" that is, sheets of beeswax stamped with the impress of the base of the honey-comb. The bees use this, draw out the cells, and fill them with honey; but as these sheets are always pure beeswax (in fact, a substitute that will answer even tolerably has never yet been discovered) there is nothing really spurious about it. I hardly need add, that the above slanderous report in regard to bogus comb honey was very damaging to the bee-keeping industry. It probably obtained wider credence because one Prof. Wylie, some years ago, started it by what he termed a "scientific pleasantry."

In regard to the artificial eggs, I believe this will be a feat still more difficult to accomplish than making artificial honey-comb, especially if these artificial eggs are *expected to hatch*. Some of the newspapers have jocosely declared that such eggs would hatch, but that the chickens did not have any feathers on them, the invention not yet being sufficiently "perfected," etc.

The adulteration of our food products is indeed a terrible wrong, and I believe the bee-men are as much in earnest about it as are the dairy-men; and if there is any thing we can do as a class toward putting these thieves and blacklegs behind such strong iron bars that they will *have* to be honest, we stand ready to do it; and thousands of us are willing to give our voices, our strength, and our money toward helping to punish the guilty. But let us have charity for each other, and be slow about rushing to the conclusion that everybody is a rogue except—

Your humble servant.

FIRST-CLASS EXTRACTED HONEY.

CAN IT BE RIPENED BY ARTIFICIAL MEANS SO AS TO EQUAL THAT RIPENED IN THE HIVES?

IF it were not a question of great importance, and one with which I have experimented a great deal, I wouldn't occupy your valuable space and my own limited time in controverting what I believe to be one of the few erroneous doctrines of our highly respected friend Muth. I refer to his teachings, that first-class extracted honey can be obtained by taking it from the hive before being capped, or "ripened," and ripening it afterward by atmospheric action. I am aware that this is one of friend Muth's old, old hobbies, but one which either will not fit all locations, or else he is mistaken in regard to the character of first-class extracted honey.

Fifteen years ago I procured two tin tanks, with gates at the bottom, holding 450 and 550 lbs. respectively. My honey-house was arranged just right for the atmospheric curing process; and while the effect was to greatly improve the raw honey, it did not, and I believe can not, ripen it to that sweet, oily flavor and consistency found in old comb honey. Endeavoring to carry the same principle further, I purchased 400 one-gallon stone jars and stored my honey in them, piling them on top of each other with sticks between, to give free circulation of warm dry air over the comparatively broad surface of these small receptacles. This carried the principle to greater perfection, but by no means to equal the extracted honey I am producing at the present time. My 1886 crop of extracted, alone reaches about 30,000 lbs., nearly all clover and basswood, as, owing to the drought, our fall flowers yielded but little more than winter supplies, and I am, as usual, jobbing it out to bee-keepers and consumers in 50 and 100 lb. lots; and I sincerely believe, that, should I begin filling orders with honey ripened *a la* friend Muth, I would soon hear a buzzing in my ears, and my rapidly growing trade would as rapidly diminish. I believe I have learned the fact, that extracted honey is depreciated in price, as compared with comb honey, mainly because it is rarely found to be its equal in quality.

I have just been reading friend Blanton's wail, on page 851; also your foot-notes, where you ask if extracted honey at 5 cts. per lb. can not successfully compete with cane sugar? I should like to answer, by saying that I haven't the least idea that it would compete with cane sugar at even 2½ cts. per lb. You will remember, that years ago I was abused by some enthusiastic bee-keepers for predicting this state of affairs, which is confirming what I then declared; viz., that honey could not be produced at a price to ever make it a successful competitor of cane sugar, except for the small amount demanded for sweet sauce and table ornament; that, hence, it never would become a staple, always remaining a commodity, which could easily oversupply the demand. Does not Mr. Dorthman's sad account, found on page 857, verify both of my propositions, so far laid down in this article?

REVERSING.

I notice, on page 858, that friend Hawk has failed to accomplish what he desired, either by brood-comb crowding or reversing. As I have had much experience with both methods, he reports just what I should expect to result from crowding brood-combs together. But if Mr. Hawk will continue the inverting system, especially if properly combined with contraction and alternating of the brood-chamber, in two horizontal sections, till he strikes the right system of manipulation for his location, I think I may say that I know he will succeed in devoting his brood-chamber to brood, and his surplus cases to surplus honey, which we all so much desire, and that, too, with the least amount of time, trouble, or exposure to robbing-bees.

GERMAN BEES.

On page 859, I see that Ralph E. Gould, who is evidently a practical honey-producer, has been testing the comparative merits of the German, Syrian, Italian, and other races of bees, and reports the same as I always expect to see, with the best strain of German bees in the hands of a bee-master; viz., that, for the most and nicest surplus comb honey, no bees known to man will excel the German variety. I am always pleased to see these bees receive the just praise that their many superior characteristics warrant.

JAMES HEDDON.

Dowagiac, Mich., Nov., 1886.

Friend H., I did not understand Mr. Muth to claim, particularly, that honey thus ripened would be equal to the best ripened in the hives, so your opinions may not necessarily differ, after all; but what friend Muth told us will be of great advantage, certainly to those who have unripened honey on their hands. But I agree with you in thinking the bees ripen it better, certainly, if not cheaper than we can by any artificial means. Friend M. sends out very nice extracted honey. Now, right here comes in a point: Do you permit the bees to cap all the honey before extracting, or do you wait until they commence capping? You may have given your experience in this matter before, but it was probably some time ago, and we should like to hear it again. And, by the way, will you give us your latest experience in the operation of extracting the honey with the least amount of labor consistent with getting the very best article? Where one works for extracted honey, how about reversing combs? and how much reversing is expedient? I did not expect extracted honey was going to affect the price of sugar very much; but I did think, and I do think, that when people will begin to reason this way: "Why, at the price it is now offered, it is not much if any more expensive than the syrups and sugar we use," then nice honey will come pretty near being as staple as butter.—I know the German bees have been called by a few individuals better than the Italians, for comb honey; but I do not know that I have heard anybody claim that they would give even as much where the extractor is used.

A HORSE OF WONDERFUL INTELLIGENCE.

MY BROTHER IN CALIFORNIA ALSO GIVES US A SKETCH OF BEE-HIVES IN THE GROUND.

BROTHER AMOS:—I have owned one of my horses almost three years, and have only just found out how intelligent she is. The forehead is full, and I have known she was almost human ever since I owned her. She had been raised to herd cattle until I got her. The other afternoon my two cows got off to their old home, about four miles, and Dolly and I went after them and got them started back to where the road forks out each side of the farm. The cows would get to the forks and run down one, and I would have to run and head them off, and then they would run back the other road, and run into the timber. I then got off and left Dolly standing in the road, while I went into the underbrush to get them out. Dolly saw me start them out, and she then gave a loud neigh and started off on a gallop. I thought she had gone home and left me; but on getting out to the forks of the road I found her standing on the opposite forks, with her ears back, ready to drive them on to the road leading home. The cattle are very gentle; and if they do not go to suit her she will put back her ears and bite at them. She does not bite hard, but just gets their skin between her teeth, and pinches, and they soon learn to skip out of her way. If they turn out of the road she goes out after them, and heads them off. Several people want to buy her, but they have not money enough. To say that I was astonished, would be speaking mildly of her great intelligence.

While out riding, looking for my cattle last week, I found a bee-cave a short distance from the house. Saturday afternoon I took my hired man, and we went down into the ravine and dug the dirt away, and got out about 150 lbs. of nice honey. They had made it in a hole that the rains had tunneled out. The first rain would have washed them all out. There are several others around. The ground seems to be a natural place for bees. The sides they had all waxed nicely, and 'twas cool down in there the hottest of weather. They are nice Italians, and not cross. I put a hive with comb foundation for them to go into.

Later.—Now, the laugh comes on me right here. As I went down to see about the hive I left to get the bees in, I found I had made a mistake, and the original swarm was *there yet*, and we had taken up another cave, about one rod below, thinking it was the one I found. Now the question is, What shall we do with the honey? In San Diego it is not worth more than 3 cts. per lb., and we have all we want to eat; but it is of excellent flavor. If we let it stay much longer the rains will wash it all away—bees, honey, and all.

M. S. ROOT.

San Diego, Cal., Oct. 26, 1886.

Thanks, brother Marsh. It must be the Root family take naturally to domestic animals, as it seems you have been getting acquainted with your horses and cattle, just as I have been getting acquainted with ours here in Ohio.—The information you give us in regard to the bee-caves is a valuable contribution to our knowledge. I presume the bees feel safe to take up with such a habitation, because you have so many months absolutely without rain. I suppose, that in your State one might start a big apiary, without very much of a cash outlay; that is, as fast as the swarms come off he could dig holes in the ground, and hive them, and so on, until the rainy season came. With such wonderful yields of honey as you occasionally have there, doubtless an enormous increase could be secured in a single season by securing a strain of bees much given to swarming; and who knows but that it is possible to cut a trench around the underground hives in such a way as to keep the rain from them, and thus have them winter over? A wooden bowl, or something of the kind, laid right above the brood-nest, would probably be all the protection needed, from frosts such as you have. You know I am very fond of having things cheap, and this idea promises cheapness, without any mistake.

BATH-TUBS.

FRIEND TERRY DISCUSSES AN IMPORTANT SUBJECT.

FRIEND ROOT:—In the best houses in the city, convenient bathing arrangements are quite common; in fact, they are the rule. But how is it in the country, among the rural population? It seems to be a general idea there, that a bath-tub is a luxury beyond their means, or, perhaps, they haven't thought much about it, but have gone along as their parents did before them. Or, possibly, they have wanted such conveniences, and didn't know just how to go to work to get them. Perhaps I can help some such persons a little by my experience, as I did friend Mattoon, of Atwater, O., by calling attention in GLEANINGS to our water-cart for receiving the kitchen-slops. Friend M., who has one, writes, "Am very much pleased with it. It is what we have needed for a long time."

When we were building our house, three years ago, we bought at a plumber's establishment in the city a copper bath-tub, 6 ft. long. They come all built in a nice pine box. In the city houses, the carpenter puts fancy work around this, at considerable expense. We did not care for this, but just set the box in the room over the kitchen, putting a narrow strip of wood around on top, and painting that and the outside of box. Then we got a common pump and some ½-inch and 1½-inch lead pipe. The pump was placed on a shelf on one side of the tub, and connected with the kitchen cistern with the ½-inch pipe. The 1½-inch pipe was used to carry the waste water from the tub down in the partition and out at the rear of the house. Then a little stove was put up to heat the room in cold weather. I do not remember exactly, but I think the entire cost was something less than $25.00 — possibly not over $20.00, and we have just as convenient a bathing arrangement as any farmer needs. Of course, he can spend $200.00 in fitting up a bathing-room, if he is able; but this is beyond the means of the masses. We have a large reservoir on our kitchen stove, and whenever there is a fire this furnishes hot water. It takes but a moment to dip out and carry up a pailful, and then pump in cold water to suit the feelings.

After bathing you have only to pull the plug out, and the water takes itself away. There is so little impurity in this water that we let it run off on the grass. During the heat of summer, nearly every member of the family uses that tub every night, the hired man as well as the rest. It gives good refreshing sleep, and, of course, better health, and keeps the bedding much cleaner. Working in the dirt is healthful and enjoyable, if one can clean up as soon as he is through, and slip on clean clothes for the evening and night. But how many workers in the soil do? My idea was to have it so handy that it would be almost no trouble to keep clean, and then it would be likely to be done. I never spent so small a sum that gave so great and continued satisfaction; and as copper and lead won't rust, it is there for life. Yes, we used to bathe after a fashion, occasionally (before we got the bath-tub) in a wash-tub or some smaller dish; but it was so much trouble getting the water ready, and carrying it out, that it didn't get done any too often, and it took away much of the enjoyment. And then the poor hired man! I suppose on many farms he has no chance to bathe, from one week's end to another. He is too bashful, perhaps, to ask for a tub and towel to take to the barn.

Not long since, a farmer who had gone to considerable expense to put up a windmill and tank, to furnish water for his cattle, complained to me that his cows didn't seem to like the water, for some reason. Like him, I couldn't see why, until I learned afterward that the hired man and employer's son were in the habit of getting a good bath in that tank, nights, after the folks were in bed! A hired man who works for one of the most respectable farmers in Ohio went home in July (began work in the spring), and went in bathing in a pond, and made the remark, "This is the first wash I have had this season!" Just think of that—going around with the filth of months accumulated on his body! And oftentimes the hired men are not the only ones who are in this fix, I am sorry to say.

Now, this is an unpleasant matter to write about; but there is a wrong here that ought to be corrected. Of all men, farmers most need frequent baths (and I take it bee-men are mostly farmers), and it may be safely said that they get the fewest. Just think: At a rough estimate there are over two million pores through which comes the insensible perspiration of the body. This makes some 27 miles of tubing. The matter that comes out of it is quite similar to the excretions of the kidneys. Stop this insensible perspiration entirely by an air-tight varnish, and the person must die. Stop it partly, with a thick coat of dirt and sweat and grime, and the health must suffer. First of all, should we fix convenient bathing arrangements on acount of the health of our children and men. I think Dr. Gunn once said, that filthiness is one great cause of rheumatism. Then it will pay in dollars and cents. A clean man sleeps better, feels better, and works better. I know, friend Root, that you would take pleasure in ordering a bath-tub for any reader of GLEANINGS, who needs one, and I do hope my few words may cause some not only to think about the matter, but to sit right down and send for one.

Hudson, O. T. B. TERRY.

Friend T., it seems a little singular that we have got just such a bath-tub for our new house as you have, and that our experience since using it has been so very much like yours. There is one point, however, you have not mentioned—the bath is a stimulant. Over and over again, when Saturday night has come I have declared I was too tired to move one foot after another, much less take a bath. "But," says my wife, "you know a bath will rest you. Time and again you have tried it." It is true; and when I get through I am ready to sit down and read my agricultural papers, and visit with the rest of the family, as if I had just got up in the morning. I never knew it to fail of making me feel rested and vigorous and strong. When a friend visits us, and we wish to have him enjoy fully all our home affords in the way of enjoyment, we ask him if he would not like to try our steam bath-tub, and words of praise follow at once; in fact, it is so much liked that sometimes one occupant follows another until the "machine" is kept going for quite a spell. I firmly believe that a man or woman will do more work, save money and doctors' bills, and live longer, by having such a bath-room as you describe, with every thing so handy that bathing is a pastime instead of something to dread. And, friend Terry, especially do I like what you have to say in the above paper in regard to the "hired man." May God help us to think of and plan for the above individual a little more, instead of finding so much fault with him! If he were provided with the conveniences such as you describe, and asked to avail himself of them, very likely we should find him more accommodating, more cheerful, and more inclined to look out for his master's interests. I will willingly correspond with the manufacturers of these tin-lined copper bath-tubs, and ascertain how low I can have them if I buy a number at a time for our bee-keeping friends. Ours cost $13.00.

ARTHUR'S BEES.

A Story for Boys.

BY MRS. CASTELLA WHITMAN.

ARTHUR was the eldest son of a farmer who lived in the southern part of one of the Northern States, a few miles from one of the towns that dot the surrounding country.

The origin of the following story has for its date July 4, 188–. As Arthur and his brothers had met with a great disappointment, their mother was anxious to make them as happy, and home as pleasant, as possible. Knowing that they were extremely fond of strawberry shortcake, and that a few yet remained, she suggested that, if they could pick them for her, she would make one for supper.

While thus engaged, one of them remarked that they must have disturbed a bumble-bees' nest, as the buzzing of *bees* attracted their attention. Scarcely were the words spoken, when it was evident whence the noise proceeded, for a swarm of bees was passing just over their heads. Arthur gave chase, and followed them nearly half a mile, across fields and over fences; then, coming in contact with a tree, they clustered on one of its lower branches.

Arthur's mother had been informed by one of the younger boys of what had transpired in the garden; and as he returned to her kitchen in so short a time, she supposed he had been obliged to abandon the pursuit; but as her eyes rested on his boyish face (which was usually pale, but now his cheeks were all aglow, with great drops of sweat on his forehead), she detected, before he recovered breath sufficient to tell her, that he had met with success.

Previous to the opening of our story, Arthur had often heard his mother propose to his father, that, even if he thought *he* could not handle bees, as it is termed, in any other way, he might have a large old-fashioned hive made, and keep it in some loft, so that they might at least have honey for their family; but no persuasion could convince him that he could take care of them in any form whatever.

Perhaps the reader will readily imagine that Arthur's mother had had some personal knowledge of them. Such was the case; and from her earliest rememberance until she was quite a child, her father kept them in the manner I have just alluded to, and she had often assisted him in his work. Fearing, however, that some accident *might* occur, she was very cautious not to over-urge.

To return to Arthur: After a short interview with his mother, he hastened to the field where his father was at work, and gave him a full account of what had happened, with an urgent request that he should assist in securing them. After much deliberation his father promised to see what could be done, much to the gratification of all. As supper time had arrived, the meal was hastily eaten, without any reference to the day.

By this time Arthur had become more composed, and thought best to go back to the spot where he had left his bees, to see if they were really there, and were as he had represented, while his father should find something in which to hive them. Nothing seemed available for immediate use, except a salt-barrel, which was soon sawed in two and made ready.

Arthur's quick return was sufficient proof that his bees were still there; and as soon as they were as well equipped for such an emergency as could be expected, they left the house, with the precautions of the family still ringing in their ears.

Success attended their efforts; and Arthur, upon their return home gave his father many compliments (in his boyish way) for his courage. "Why," he said, "father even drew off his gloves, and actually scraped the bees from the would-be hive, as, in their haste, after they once commenced entering it, many crawled up the sides."

The next thing to be done was to select a place suitable for them. Finally it was decided to place them under a large apple-tree in the rear and a little to one side of the house. As nothing more could be done until dark, each one took his accustomed place at the chores, which at least every farmer-boy knows better of what they consist than I have room here to describe. In due time father and son had the satisfaction of seeing the bees placed in their assigned quarters. That night, as Arthur and his brothers were reviewing the day, they thought they had enjoyed it as much after all as if they had been permitted to attend what entertainments the town afforded. Their mother here remarked, "My boys, you will seldom regret it if you willingly obey that which your parents think is for your good."

Continued Dec. 15.

LETTER FROM ONE OF OUR LADY BEE-KEEPERS.

WRITTEN FOR THE INDIANAPOLIS CONVENTION, BUT NOT USED FOR WANT OF TIME.

THE following letter was forwarded us through the kindness of Mrs. Robbins. You will notice the article was written to be read at the convention, and not to be published in GLEANINGS, which fact may induce our friends to overlook the exceedingly kind words addressed to the editor of GLEANINGS:

Mrs. Cassandra Robbins: Dear Madam:—The evening that GLEANINGS of Sept. 15 came, among other things of interest I read the extended notice and programme of the N. A. B. K. Society, and again I was seized with a desire to accept your kind invitation to attend the convention, and behold the faces, and sit at the feet, and learn of my numerous acquaintances which I have gained through the medium of the *American Bee Journal* and GLEANINGS.

But in that programme I did not find a certain thing mentioned for consideration in which I should suppose all *Western* bee-keepers would take unbounded interest; viz., manufactured comb honey.

Two or three years ago I met an elderly gentleman from Kansas, who, knowing I was an apiarist, informed me that people "out west" *made* honey, comb and all, by machinery. I "disdoubted" his statement, as the boy said, but failed to convince him of his error, and you will pardon me if I could not help smiling while he was talking. It was probably constitutional with him, so we must be charitable, knowing that—

"Men are preverse and oncertain creeters,
  And forget that 'tain't likely to happen,
 Their own private fancies
  Can always be cappen!"

Now, to take the aforesaid industry a little nearer home:

In the *American Bee Journal* of Jan. 13, 1886, we read: "I went to one grocer in this city who had recently purchased from *Ohio*, 1000 lbs. of what he honestly supposed to be real honey, and convinced him in five minutes that almost the entire quantity was made up of syrup, deftly secured in comb. He simply said, 'What are we coming to?'"

"Who is here so base that would be a bondman? If any, speak; for him have I offended. I pause for a reply."

Mrs. Robbins, you are quite right, I believe, in entertaining the idea that women are well adapted to the pursuit of bee culture. Our brothers are often a great help to us in this as in other callings, and, withal, so self-sacrificing.

One day last July my little seven-year-old niece, Florence, was visiting here. A short time previous she had been in the honey-house of a bee-keeper not forty miles from here, who had recently obtained a new machine in place of his old inferior and perhaps slightly disabled one, which worked *admirably;* and, what do you think? Out of the exceeding generosity of his great heart he told Florence that that old machine would be just the one for her aunt Marcia. Of course, my heart went out in gratitude for his thoughtfulness in my (?) behalf; but I was unable to see why *I* should not invest *my* money in a good machine as well as he; and up to this date the question stands open in my mind. But such disinterested solicitude should not go unrewarded.

Now, I am free to admit that I have a sort of admiration for bee-keepers as a class—men and women. I might name several of them, except for my extreme bashfulness. But I will not refrain from speaking words of commendation for our estimable friend, one of our fathers in apiculture—Mr. A. I. Root.

I have never had the pleasure of seeing him; but how could I help knowing him, after having seen so many interesting places and things through his pen—Mr. W. W. Rawson's cucumber-greenhouses and hot-beds at Arlington, Mass., for instance. Why, I almost wanted to begin work at once in a greenhouse and garden of my own. And then I should like to shake hands with him on the tobacco question, for I, too, *hate* that weed. I wonder how it is that he succeeds in helping so many to discontinue its use. It can not be simply the gift of a smoker, for that, in these *chronic* cases, would not serve as a *least inducement.* But, above all, he seems to be a man who lives his religion every day, and his articles and little suggestions are so helpful to us all who would know the better way, seek peace, and love righteousness.

And now, in conclusion, allow me to briefly congratulate all who have the pleasue of attending your convention. May each be socially benefited, and receive and impart largely of information. I hope you will not be denied the presence of any "quantity" of patent-right men, with their various wares—every one of whom has the best in the market; for what is a bee-keepers' convention without *them!*

Very cordially your bee-sister,
Shoreham, Vt. MARCIA A. DOUGLASS.

I am very glad, my good friend, to know that you are interested in cucumber greenhouses. I have oftentimes wondered whether the readers of GLEANINGS were interested in following me through this (to me) wonderful, and, in some respects, unexplored region of vegetable life as well as insect-life. I do think a small greenhouse would be next to a piano or organ for every home; and I do not believe it would be money wasted either, especially if the women-folks had enthusiasm enough to keep it neat and tidy. Blue Eyes is just now on a big tease for a little greenhouse. She can hardly think of any thing else, and she and her papa bid fair to revive the pleasant relations that existed between them eleven or twelve years ago. You see, she is now almost fourteen years old. I had hoped she might become a bee-keeper; but if her taste should run to floriculture instead, I will try to be content.—By the way, my good friend, are you not a little uncharitable toward that brother who offered to sell you his old extractor? May be he thought that, with your comparatively limited number of colonies, it would answer just as well as a new one, and would cost you very much less money.—I am much obliged for your very kind words. The tobacco business is God's work, not mine. I am very thankful that I have been worthy of being used as an instrument in his hands.

"HONEY IN TOO MUCH STYLE."

MRS. CHADDOCK ALSO GIVES US A SENSIBLE TALK UPON THE BEST GIRL.

I WONDER if we are not getting our honey up in too much style. Style is all right for rich people who are able to afford it; but it seems to me that, when we get our honey into pound packages, and then sell it to people who are too poor to eat on a table-cloth, and who care nothing whatever for style, we are making them pay for something that they do not want.

Two or three weeks ago I sold a man a box of honey. I drove up to his grocery and gave him the box, and told him I would come back after I had tied up the team, and attend to it. I did not get back quite as soon as I expected, and when I did I heard the conversation in the next room. The man said, "May be she won't want you to cut it out."

"I don't care what she wants," said the woman; "we buy the honey, and pay for it. We can't eat the boards, and we're not going to pay for them. If we have got to eat boards for a living, we can go to the lumber-yard and get some cheaper than these."

Here I went in, hoping to stop the desecration if possible; but it was too late. I had been very careful to get that nice honey all into good shape, rejecting, as I prepared it for market, all the sections that were not entirely sealed over, and leaving out all in which a single cell was broken; and, after all, to have it cut out and broken out and punched out, with great big thumbs and fingers, and dumped into a big bucket to settle down and all run into each other, just to save paying for the sections, was a little too much. I sustained myself as well as I could by repeating over to myself, "Cast not your pearls before swine," and, "He that is filthy, let him be filthy still," and other scriptural injunctions, but all would not do—*I was mad*—not altogether from the money that the sections would bring, but the wooden-headedness of it all. But I only said I'd know what kind of honey to bring them in the future, and I'd cut it out at home and bring it in in a bucket, and not have the honey dripping all over town. Since then two different parties have come here for honey, and they both asked if I would not cut the honey out, as the sections would be of no use to them. Just then I thought of something, and said yes, I'd just as soon cut it out as not; and I went to one of those 60-lb. hives of drone-comb honey that I got when *I wasn't* following Mr. Hutchinson's method, and *cut out* all they wanted, charging them just the same as if I had sold them the 1-lb. sections. Then I thought the matter over, and I have come to the conclusion that, for a certain class of customers, our honey is *too* fine, and next year I'm going to have *considerable* of that *big drone-sheet honey*, and I'm going to sell it to all the people who don't want to pay for "the boards." I'll give them their choice, and charge them the same price. May be if I were as poor as some of these folks who object to "the boards" I'd feel just as they do. There's a great deal of human nature in folks anyway.

MRS. CHADDOCK'S LOW PRICE OF HONEY.

When I told in GLEANINGS what I was selling honey for I little knew what trouble I was bringing on myself. First, I am scolded. Then people begin to send to me for honey, and I have to write and tell them that I have no honey to ship; I have no honey to *sell*. I have some honey on hand; and when people are sick, or have a wedding, and come to me for honey, I always let them have a little. Now, friends, kind friends, dear friends, don't any of you send to me for honey. I might write to all of you, and explain how it is; but I am almost always out of stamps; sometimes I have letters to send away, and have to wait two whole weeks till the hens lay enough eggs to buy the stamps with. Of course, friendly letters, and complimentary letters, are pleasant things to get, although from strangers; but nobody seems strange to me; and if you are willing to wait on the hens I'll answer them all. But when I get a letter wanting honey, that *sounds* like business, and I feel bound to answer it. I mentioned the price I was selling honey at, in one of the papers that I write for under a *nom de plume*, and I received a note that had been sent to the editor, asking him as a great favor to tell him who that woman was. I thought, now here is an editor who admires my style, and wants to hire me to write for his paper, and may be he'll pay me a hundred dollars a year; and I sat down and wrote him an awful sweet letter, telling him who I was; and then he wrote that what he wanted was to buy some honey of me. I felt blank, and answered him rather shortly, I am afraid. So, dear friends, I like you all; but poverty prevents my saying so in letters.

THE BEST GIRL.

I read last week, in Harper's *Bazar*, a *lament* by the editor. She says that our best young men don't marry *our best girls*. She says that the poor young men of the present are the rich and influential men of the future, and that is true; but that these same poor young men don't marry the *best* girls is *not* true. She says the reason that the poor young men don't marry the rich young women, whom she calls the *best* girls, is because the poor young men can not afford to buy the ten-dollar bouquets that custom demands him to give his partner at a ball; therefore he stays away, and the *best* girls have to hunt up somebody else. I know very little about society in New York. I've had very few ten-dollar bouquets presented to me; but I *know* that the *best* girls are not the society belles of New York or any other city. The *best* girls comprise the army of school-teachers who, about the middle of September or the first of October, begin their work in colleges, graded schools, and little red schoolhouses all over the United States. The *best* girls are in that other army of clerks in all the stores of the country and city. The *best* girls go in hundreds to work in our factories, dress-making establishments, printing-offices, and in the service of the Government. The *best* girls out in Dakota do housework, and get from sixteen to twenty-four dollars a month, besides their board. The *best* girls are the *working* girls who don't want a ten-dollar bouquet; and *they* marry our best young men.

MAHALA B. CHADDOCK.

Vermont, Ill.

Mrs. C., you may remember that I have written at different times about what we call "chunk honey;" that is, when we have honey that we can not get into good shape any other way, we cut it out into tin pans or basins, so much in a pan, and it has always gone off pretty quickly, at about two or three cents less than our comb honey in sections. You remember that friend Chapman (of the Chapman honey-plant celebrity) has always sold his honey in the same way. He puts a dollar's worth in a pan, and sells it, pan and all, for a dollar.—I agree with your closing remarks in regard to the "best girls." If there are any better girls in the world than those we have in our establishment, there is an encouraging future before the world just now; and I believe that it is pretty generally agreed that the girls who belong to "Root's factory," for general worth and intelligence, are welcomed in any society in or round about Medina. They are foremost in all good enterprises; they are conversant with the current literature of the day; they not only attend our best lectures, but they are able to follow our brightest and best thinkers; they are foremost in our prayer-meetings, churches, and Sunday-schools, and they are able and willing and ready to take hold of the great problems of the day.

SHADING HIVES IN WINTER.

FRIEND DOOLITTLE'S VIEWS ON THE SUBJECT.

A CORRESPONDENT wishes to know if it will do any good to shade hives, by way of preventing bees from coming out and dying on the snow. To which I reply, Yes; and I would also say that a shade of the right kind is very beneficial in other ways. Some seem to think that the sun does not warm up the interior of a hive to any extent so as to disturb a healthy colony of bees; but from years of experience I am convinced that such are mistaken. Even chaff hives are warmed clear through their thick walls so as to make the bees break their cluster and run about the south side of the hive, along the warm material, to such an extent that it often results in disease. Especially is this true if the hive is painted any color other than white; for the darker the color, the more heat there is absorbed. I have repeatedly looked into hives at about 3 P. M., on days when the sun had been shining brightly; and although the mercury then stood below the freezing-point in the shade, the bees were lively and active across the whole length of the front, or south side of the hive, while the north side of the interior of the hive had no bees about it, and that side of the cluster was unbroken. Besides this, many bees would come to the entrance, and, finding it warm and nice there in the bright sunshine, out of the wind, would take wing, only to be chilled as soon as they left that comfortable nook, made so nice by the warm rays of the sun. As night came on, the cluster was again formed, only to be broken the next day, and so on, until disease was contracted, or the colony materially injured from the loss of bees.

After watching proceedings for some time I began experimenting by shading the front of a part of the hives, while others were left as before. All those shaded were found quiet, with an unbroken cluster, at 3 P. M., while those not shaded continued to parade along the south side of the interior of the hive, and fly out and get lost. I now shaded all of the hives, since which I have been far more successful in wintering. For a shade I use a board about one inch shorter than the front side of the hive (hives face south), and a little wider than the hive is deep. This board is set on the bottom-board of the hive or the alighting-board, out about six inches from the hive, when the top is leaned over against the front of the hive. In this way there is an average space of three inches all along the front of the hive, so that a free circulation of air is allowed, thus keeping the front of the hive as cool as the back side. When snow falls, the entrance is not clogged with it, and it also keeps strong winds from disturbing the cluster and cooling the interior of the hive by blowing in at the entrance. Again, it allows all the old bees to come out of the hive to die, as they always will do if they can, so that the entrance is not so liable to get clogged with dead bees. When it is really warm enough for bees to fly, this board is no hindrance to them, but, on the contrary, it keeps the entrance in such a condition that they can fly at any time when it is warm enough, without any assistance from the apiarist by way of shoveling snow, etc. In the summer these boards are left turned down right in front of the hive, so as to give a large even surface for the bees to alight upon, as well as to help in keeping weeds and grass down. I am so well pleased with them that I could not think now of getting along without them. As they will soon be needed, I give this in time so all can try a few and see whether I am correct in my conclusion or not.

G. M. DOOLITTLE.

Borodino, N. Y.

Friend D., I at one time thought a good deal as you do; but I have so many times had, as I thought, abundant reason to think that hives that stood in the sun did much better than those that were on the north side of the building, I concluded the sun was a decided advantage in the end. Shading only the *front* of the hive in the way you suggest, may make quite a difference, however. But, don't these broad shading-boards warp up so as to get unsightly, when one side is against the ground, and the other right under the blazing sun of summer? I know such a board keeps down weeds, but it makes such a lurking-place for spiders, toads, and other vermin, that we have several times rejected them. May be you clamp your shade-boards to prevent warping; and if so, we should be glad to know just how you do it. We have never found the sun a a detriment in our locality.

THE SOLAR WAX-EXTRACTOR.

ALSO SOMETHING ABOUT THE USE OF KEROSENE FOR LIGHTING FIRES.

DEAR MR. EDITOR:—I promised last summer to report, at the end of the season, as to the value of the solar wax-extractor which you so kindly donated to our college. We like it so well that hereafter we shall use no others, except in a very limited way, just to show our students how they work. First, this extractor is so convenient. It is ever ready, and we have only to throw in our old combs, fragments, or cappings, when, in a few hours, we have them all rendered into the very nicest wax—no firing up, no possible litter or muss, all clean and fresh, out in the pure air, where room is unstinted.

Again, there is no danger of overheating and injuring the wax. Without the least watching or care, we are sure of the very nicest of wax.

We find it best to add only enough comb for one day's rendering. This gives us better results than to fill up the extractors, as in this way we get the wax very clean and nice.

I have learned one little lesson from this wax-extractor experience. That is, when a man of the ability, candor, and experience of O. O. Poppleton recommends an instrument, practice, or system, it is no part of wisdom to let the advice pass as an idle tale. We ought to have had a solar wax-extractor years ago.

It may be said, "Yes, wax-extractors are a good thing for one with a few colonies of bees; but they are not the thing for the 'big guns.'" I do not see the force of this. If they are desirable at all, I think they are for all. We can enlarge or multiply the number of extractors, and thus secure the same advantages in a large apiary that the solar extractor gives in a small bee-yard.

It seems to me that the style you sent leaves little to be desired—a plain tin-lined box with two hinged covers, one a glass one, the other wooden, lined with either a tin reflector or a glass mirror. I would add a couple of iron strips, one at each end, so that the upper cover could be held in just the position desired.

KEROSENE OIL.

I am glad you have told the readers of GLEANINGS how to light their smokers. The little oil-can is safe, and its use saves much valuable time. Knowing your desire to aid your readers in every way, I wish to add a word as to the use of kerosene oil. You know many use it to light the fires, especially in the kitchen stoves. I have seen several parties turn kerosene right from the oil-can into a stove, and in two cases there was abundant living coals in the stove at the time, as shown by examination made upon the spot.

Our children were much amused the other day in reading in their *Youth's Companion* of a man who "swore a terrible oath; he said, 'By hemlock.'" I am sure such terrible swearing would almost be warranted by the sight of such a criminally careless use of kerosene. I say *criminally* careless, and I mean it. It is a crime to thus endanger life and property. In our own State there have been several funerals in consequence of just this reckless use of kerosene. It is certain that no one ever has a right to induge in so foolhardy a practice.

I wish now to give a modification of this method, which is entirely safe, and which we find exceedingly convenient. We roll up a small roll of cotton cloth, about as large as a small orange, and saturate this with kerosene. It is not necessary to add so much oil as to cause the rolls to drip, or to be unpleasant to handle. These are kept in a safe place, in a close tin can; and as a dozen or so are made at once, they are always ready for use. One of these, laid in a stove, and covered with the usual stovewood, placed as required to make a good fire, and the ball then ignited, will give us a good fire in an astonishingly quick time. We value these kerosene balls very highly. A. J. COOK.

Agricultural College, Mich.

Friend Cook, I knew, when Mr. Poppleton first told about the possibilities of the solar wax-extractor, that they ought to be offered for sale, and introduced generally; but with the many burdens on my time and brain I felt obliged to let it pass by, and so it went until it was revived by somebody else.—I heartily indorse your remarks in regard to kindling fires with kerosene. The plan you suggest is now in use in many families; and a still cheaper absorbent of the oil than a ball of rags is corn-cobs cut up into pieces two inches long. Put these in a pail or stone jar, and pour on your kerosene. After they have absorbed all they will, pour off the residue and they will never drip. I believe there was at one time a patent on a piece of pumice-stone fastened to the end of a piece of wire. This is dipped in a vessel of oil kept at some distance from the kitchen stove. After the fire is lighted, the stone is removed by the wire handle, and can be used over and over again. One of the advertisers in GLEANINGS uses a little ball made of old newspapers.

SELLING BEES AT PUBLIC AUCTION.

SOME SUGGESTIONS IN REGARD TO MANAGING SUCH A SALE.

I HAD determined to reduce the number of my colonies, and also sell most of the stock on the farm, in order to devote more time to the ministry. It became a matter of considerable anxiety as to whether the bees would sell for what they were worth, being late in the fall (19th of Oct.), when I was to have a sale. Of course, the surplus honey was all removed, and the crates and supers all packed away into the honey-house. The apiary wore a kind of deserted appearance, as is usual when the season's operations are over. I stated, in the sale-bills, that the hives would all be carefully and plainly numbered, and the purchaser's name placed on the hive, and that I would winter the bees, and guarantee them in good condition the 15th of April, 1887. I also went over the apiary before the sale, and carefully graded them—No. 1, No. 2, Italians; and No. 3, hybrids.

The day of sale proved to be very fine and sunny, and we had a large attendance. When we finally came to the bees the bids ran up to $5.00 per colony for the best, and all the No. 1 were taken at that price. Then the No. 2 ran up $4.50 per colony, and all of No. 2 were taken at that price.

The bidding was more tardy and lifeless on hybrids, but finally $3.50 was reached, and quite a number were taken at that figure. But I concluded not to urge the sale of them at that figure, and so I have left on hand some 50 colonies, which I will keep and Italianize next season.

The situation of the bee-keeper has been somewhat discouraging the past season, owing to the depression of the market for honey. A great many farmers saved their bees over last winter, and nearly all have more or less, and quite a good many had a surplus, and put it on the home market at a low price, on account of its being in bad shape.

I forgot to state that my terms of sale were 12 months without interest, and also that purchasers bought only the lower story of hives, with the option of taking the surplus arrangements in the spring, at the regular price. The prices may seem low to many of my brother bee-keepers; but then, they were *all* disposed of in an hour; and considering the low price of all classes of produce, I don't know but the bees sold for enough—at least, I feel pretty well satisfied. I am at present located (for three or four weeks) in the northwest corner of Iowa, holding a series of meetings. It was only a few miles from here where, a short time ago, the Rev. Geo. Haddock was so cruelly murdered for his having taken an active part in seeing that our prohibition law is carried out. The effect of the assassination of this minister is to unite temperance workers. Quite a number have expressed to me here, that they have, only since they have witnessed this cruel murder, had their eyes opened to the real wickedness of the rum power.

This is a beautiful country—rather too new for bees to do well, being mostly fresh prairie lands —not much white clover nor other honey-plants.

D. E. BRUBAKER.

Marcus, Cherokee Co., Ia., Oct. 30, 1886.

BACTERIA.

FRIEND COOK THROWS SOME LIGHT ON THE SUBJECT OF REMEDIES FOR FOUL BROOD.

I THINK readers of GLEANINGS will be interested in some experiments that have just been carried on in our laboratory by one of my students. It may not be known by all that all putrefaction, or decay, of organic substances of animal origin is due to the development of minute vegetable organisms, or so-called "bacteria." These tiny plants scatter their still tinier seeds, or spores, as they are called, which, as mere specks, not visible at all except when highly magnified, are borne everywhere by the air-currents, and so are ever ready to fall upon any inviting soil, where they may germinate. The *Bacterium termo*, which looks like two links of a chain, finds the requisite soil and conditions in dead animal tissues, and so is ever ready to seize upon them. If the moisture and heat are sufficient, growth and development take place, the dead tissue is consumed, the bacteria grow apace, and, as a result of the changes, foul gases are given off, which quickly convey to us, if we approach the seat of the phenomena, the exact state of the case. Foul brood is much the same, only there the fungoid growths are able to fasten on to living organisms instead of dead tissue. All organic matter is susceptible to such attacks. Putrid or decaying milk suffers in the same way. T. Landon Sanderson, a distinguished English scientist, has just shown that milk is often rendered very injurious to infants if bottles are used that have rubber nipples, especially if long rubber tubes are used. Bacteria develops in the milk left in the tube; these are carried to the stomach of the babe, and often continue to swarm and multiply in the alimentary canal, and so injure if not victimize the helpless infant. Thus it is seen that only such apparatus should be used in such cases as can be thoroughly and perfectly cleansed each time after use.

Seeing the statement in the *British Bee Journal*, that not only carbolic acid and salicylic acid, but also coffee, would destroy bacteria, I asked one of my students to test the matter. The following is the result:

Ripe tomatoes were placed in water, and slightly boiled. This decoction was then placed in several tubes. In one phenol was placed; in another, salicylic acid; in another, a strong decoction of coffee, while a fourth was left exposed with no fungicide added. In four days the last two tubes were clouded, while the other two remained clear. Examination, with a 600-power microscope showed that the clouded liquids were the scene of extensive fungoid operations. Bacteria of several forms were rolling and pushing and scrambling by and over each other, reminding one of a pond full of most active wrigglers, or polliwogs. This is a most wonderful sight. We take no more water than the smallest drop, and place this between two glasses, placed flat, the one on the other, and yet, wonderful to relate, we see millions of these little wrigglers sailing about as though the world were before them, so small are these minute fungi. Similar examination showed that the clear liquid had no such miniature life. Thus, while carbolic acid and salicylic acid will prevent the development of these minute fungi, coffee did not seem to do so.

Some of the cloudy liquid was then placed in each of these tubes, to which was added carbolic acid, salicylic acid, and strong coffee, respectively. In a few hours the odor and life had all disappeared from the two first tubes, while in the tube with coffee the life and odor were still present. Thus we conclude that coffee is worth more to nourish our bodies and tickle our palates than to destroy foul brood or other bacteria. A. J. COOK.

Agricultural College, Mich., Oct. 30, 1886.

We are very glad indeed, friend C., to hear of these experiments; and while they do not indicate positively that carbolic acid and salicylic acid are antidotes for foul brood, it very much strengthens the idea. I have all along felt that the suggestions thrown out, that coffee might prove a remedy for foul brood, was a mistake, and I am glad that you have shown by actual experiment that it has no effect one way or the other on bacteria. Now, are we to understand that an infusion of tomatoes, such as you made, will, after being exposed to a warm temperature three or four days, always give birth to these same forms of bacteria? If so, I suppose the explanation would be that the spores of these lower forms of life are always floating about in the atmosphere. If this is so, we are forced to conclude that the frosts of winter have no effect in destroying the life of these spores, and I believe this is true in regard to real foul brood. A heat equal to boiling water, however, if I am correct, destroys all insect and vegetable life. Boiling water is, therefore, the only safe means of rendering hives and utensils, that have been in contact with foul brood, harmless for future use. I presume we are to understand from your remarks, that *phenol* and *carbolic acid* are virtually one and the same thing—at least, you seem to use the terms indiscriminately.

I would place the use of common salt, as a remedy for foul brood, in the same category with coffee. It has been suggested, that foul brood is caused by lack of common salt. Now, this is surely not so in our case, for we have been in the habit for years of killing weeds in front of the entrances of the hives with salt; and perhaps two or three barrels have been used for the purpose. Every time we have a light shower, the bees have salt water to their hearts' content, right before their noses. Shall we not let reason take the place of using drugs in the dark, in the hope that we may possibly blunder on something that will hit the spot?

FRIEND GOULD'S SECTIONS.

J. B. MASON GIVES HIS OPINION OF THEM.

IN looking over GLEANINGS of Nov. 1, page 858, I find a description and also an illustration of the Hutchins box, as described by Ralph E. Gould. In these new things that are coming up daily, we want to learn all their good points, also all their bad points; and this is what our journals are for, that we may communicate with each other and thereby save others the expense of going over the same ground to try things that have been tested and found faulty. GLEANINGS has saved me hundreds of dollars in this way. If GLEANINGS cost $25.00 per year I should consider it the best investment I could put $25.00 to, and here are some who can't afford to pay $1.00 for it, or, at least, they think they can't. Well, all I can say is, it is poor judgment on their part. But, to return to the Hutchins box.

In justice to friend Gould I will say I have never used this style of section, so due allowance should be made in any thing I may say of the box. Possibly I might like it better after using it.

At our State Fair was the first time I ever saw the box filled with honey. Friend Gould had quite a large display of honey in this style of section, on exhibit and to sell; also one case holding these boxes, that had been on the hive, and filled, or partially filled. This honey was placed alongside of my exhibit. We were allowed to sell honey at wholesale and by the box, also by the plate. And right here I owe you thanks, friend Root, if not money, for the description of how you sold honey at the fair. I tried it, and it proved a perfect success. Friend Gould was away most of the time, and I looked after his exhibit. He gave me liberty, if I came short, to sell from his. I offered some of his to those purchasing a box, to carry away; but I found, first, that people wanted to see that hidden side; second, that, in removing the cover as carefully as one could without extra care, the section was so frail that it would twist enough to crack the cappings of the honey and set it to leaking; third, that the shape of the box with the cover on is such that it is naturally carried on its side, and that the honey was badly broken. I found that people chose the open section, and had it done up in a paper, at the same price, feeling that they were getting more for their money, although that might have been partially the light weight, as I found these sections did not contain nearly a pound. Judging from the feeling, I can hardly see how those sections bring readily 2 cts. per pound more, as friend G. says. The case on exhibition was not very attractive, as it was. These boxes were so thoroughly cemented together with propolis that it looked to be quite an undertaking to get out the boxes and clean them. Friend Gould says that separators cost $1.50 per 100. He obtains with the box nothing but wood separators, which can be obtained for 75 cts. per hundred. Then he speaks of the boxes coming all put together, as though this were an advantage, which I should consider a decided objection on account of their bulk. It might do for one who lived near the manufacturer, as friend Gould does; and as for shipping honey, no device that conceals the honey entirely from sight is practicable. I received a lot of comb honey from one of our leading honey-merchants last year, in which the honey was packed in a box entirely from view, and might have been taken for a box of iron or stone, and it got such usage that it was entirely smashed up. Now, if this honey had been shown by glass at the sides it would not have been thrown around by the railroad men as it was.

Mechanic Falls, Me. J. B. MASON.

I am very much obliged to you, friend M., not only for the kind words you give us in the outset, but for the report you make in regard to the practical working of Gould's system of getting comb honey. I did think of the light section, but forgot to mention it. Of course, they could be manufactured of heavier material, without probably increasing the expense very much. I also omitted to note the excessive freight charges that purchasers would have to pay on boxes set up. Notwithstanding this, however, we send out a good many sections folded up, with starters put in. We had a little experience some time ago in receiving honey by rail, that was boxed up tight so no one could get a glimpse of the contents. It turned out about as you mention.

BUZZING AND HUMMING.

HOW DO BEES UTTER AUDIBLE SOUNDS?

AS there is some interest just now as to the sounds made by bees, it may not be out of place to quote from Frank Cheshire's excellent book. On page 149, Vol. I., he says: "It would be extremely erroneous to conclude that the wings alone, or even mainly, give out a note." "Landois recognized three tones in the flight sound. The first produced by the wing-beats; the second, sharper in character, by the vibrations of the abdominal wings; the third, the most acute and intense, from the action of the true vocal apparatus, placed in the stigmatic orifices." He says the wings undoubtedly do the buzzing, but the humming is as clearly the outcome of a special apparatus connected with the breathing-tubes, and that this humming, which may not inaptly be called the bee's voice, is caused by muscular contractions within the thorax, these contractions being the same that cause the wings to vibrate. This may sufficiently account for the tremulous motion of the wings spoken of by G. M. Doolittle (GLEANINGS, p. 855), without attributing it to the tremor of the body. Indeed, when the queen is piping, no movement of the body can be seen, as I certainly think would be the case if the tremor of the body were sufficient to cause such plainly visible motions of the wings.

PACKING BEES IN LONG BOXES.

On page 849, Arthur W. Jewett tells about packing hives in long boxes, letting the bees have winter flights from these, and then taking out the hives in spring, and setting them on the summer stands. Among my dreams of plans for wintering without hauling home my bees to put in cellar, is one which consists in having a long box, or hive, chaff hive if you please, say ten feet long, and thus having a capacity of perhaps 80 combs. In one end of this would be put a colony of bees on 4 or 5 combs, having abundance of stores, then a bee-tight division-board made of ⅜-inch boards, then another colony, and so on. This would allow 12 or 15 colonies to be packed in a length of 10 feet, and the box or hive might be made double, having a central board running the whole 10 feet, and serving as the back for each hive. Thus there would be great economy of heat, each colony helping to keep its neighbor warm; but a serious practical objection in my mind has always been that these colonies could not be moved in spring or early summer without flying back to their old location. As Mr. Jewett has had practical experience on this very point, I should like to ask him what has been his experience. Is there no loss of bees from flying back when the hives are moved in the spring? and if so, what is done to prevent it?

DOES CELLARING LESSEN THE VIGOR OF BEES?

I have heard some claim, that, of two colonies, wintered the one on its summer stand and the other in the cellar, exactly alike in the fall, the cellar bees would be more tender in the spring from lack of exposure, and, as a consequence, would build up more slowly than the others. If there is any truth in this, it ought to be taken into account in comparing the two methods of wintering. If Ernest should conclude to cellar some colonies, I wish he would especially notice as to this point in spring.

SALT FOR BEES.

Until this year I never tried giving salt to bees. During the past summer, however, I found in the bees' drinking-pail "wigglers," or mosquitos, in the larval state. To prevent this I threw a good quantity of salt in the water. The bees worked away at the water, and some of them worked directly on the piles of wet salt, which, lying on pieces of wood, had not yet dissolved. To find out whether any of them were after salt more than clear water, I put a pail of clear water beside the salt water. Scarcely any bees worked on the fresh water; but bees are always slow to commence on a new place, so I made the fresh and salt water change places, and in a little while the salt water appeared to be the favorite. I had never before thought that bees need salt; but where there is an eagerness to obtain something, it is pretty good evidence that they need it. I am aware that every now and then some one raises the cry that salt is injurious, especially to the human family; and while I believe that, like almost every thing else, an excess may be injurious, a certain amount is required. I accept as a literal truth, the words of our Savior, "Salt is good." C. C. MILLER.

Marengo, Ill., Nov. 3, 1886.

Friend M., the idea of packing bees in long boxes has been tested pretty thoroughly; and one of the obstacles in the way, if not the *great* obstacle, is loss of bees by changing their location, both when they are put in this long box, and when they are taken out and put in regular hives. If the bees were carried three or four miles, however, when putting them in and taking them out, I think this trouble would be perfectly remedied. You would, however, be obliged to have the bees and combs in a movable case that could be lifted out of your long box, and carried to its destination before they are allowed to fly. I am inclined to think it will be found almost too much machinery.—When I practiced cellar wintering, and compared it with outdoor wintering, I was inclined to think the colonies wintered outdoors were, as a rule, in the best condition, when ready for honey-gathering.—Many thanks for you clear and satisfying experiment, to prove that bees prefer salt water to pure water. Now, I should like to know if you made any experiments to see just how much salt had better be used—say to a pailful of water. I, too, believe that salt is good; and it seems to please our domestic animals so much that I would give it to them as I give them apples, even if I did not believe it to be conducive to their health.

WINTERING.

BROOD-REARING LATE IN THE FALL NOT ALWAYS A NECESSITY FOR SAFE WINTERING.

OUT of 77 colonies and 2 nuclei, my only loss last winter was three queens. I used the queens in the nuclei, and doubled the remaining colony with another. I have now 76.

The bees were wintered in a temporary cave, which, for the benefit of some, it may not be out of place to describe here.

I have no land of my own as yet, so I can not build a cellar with underground ventilator, etc., as I should like to do. I made my cave 3 feet below the surface, 10x16. Three upright posts were placed on each side, and three rafters were laid on top of these. The sides of the cave were the only support to the posts. Boards were laid around the outside, and banked up with straw and earth to the top. The roof was made by laying boards on the rafters, then 3 inches of chaff, and then another layer of boards, lapped, to keep out the rain. It was 6 ft. high inside, roof slanting one way; a door in the end, and two blind ventilators, completed the cave. I have used it successfully the last two winters, and would much prefer it to any cellar under a house, which is used for general storage—any thing except a cellar built expressly for bees. Old cellars usually have more or less foul air, while in this cave the air is pure, and it never reaches the freezing-point. I do not think the thermometer fell below 40°, any time last winter.

I can build such a cave in two days, by using new 16-ft. lumber; and it would surely pay any one, having thirty or more colonies, to build such a cave, if bees have no better place for winter quarters.

My bees are all in Gallup ten-frame hives. They were contracted to six and seven frames. I filled the space behind the division-board with chaff, and chaff covers, with four inches of loose chaff on top.

BROOD AND YOUNG BEES.

We read a great deal about colonies having plenty of brood and young bees previous to their going into winter quarters. With this I heartily agree; but I made some observations last fall that were not quite in accordance with it. The first week in September, 1885, was very cool, and the bees huddled close on the combs. Then the weather became very warm, and honey came in so fast that the brood-comb was filled as fast as the young bees hatched out. Extra combs were given, but it seemed as if honey were stored everywhere, and several of my best queens could not be induced to commence laying again. I reasoned that, if the queen stopped laying in the early fall, she would commence sooner in the spring (honey being plentiful and of good quality), and I think my reasoning correct; for when those hives were set out this spring they were full of bees, all had abundance of brood, and are among the best I have. Most of the hives hatched brood three and four weeks later, but were no better.

Some advocate having one or two empty combs in the center of the brood-nest, for clustering. I gave nine combs full of honey. The bees hung below and close to the entrance. I presume empty combs are beneficial when bees are wintered out of doors; but in the cellar I should not deem it necessary. ROLAND SHERBURNE.

Lone Tree, Johnson Co., Iowa.

Friend S., your wintering-cave is not unlike many that have been described before. The objections are, the general untidiness of such a temporary arrangement, and also that, during many winters, they do not seem to have kept the frost out sufficiently. Quite a number of the veterans have decided that they not only want a building above this repository, but they want a fire kept in that building. I believe you are a smarter man than most men whom we ordinarily come across, if you can build such a structure as you describe, and have it frost-proof, and do the work in two days; yet I know from my own experience how much even an ordinary man can accomplish when his heart is really in the work.

CATNIP TEA VERSUS HOT WATER.

A LETTER FROM DR. HIGBIE AGAIN, ON THE WHYS AND WHEREFORES IN THE USE OF MEDECINE.

HEALTH is one of the greatest blessings that a person can enjoy in this life, and a great many people enjoy it for a long term of years without knowing or caring whether it is preserved or not, and regard it as throwing money away to obtain information in that direction. Without health, the prospect of doing much good in the world is rather small, and it should be the duty of every one to study to live up to the conditions that will secure health. I think it wrong to teach that, because we have sickness in the world, it is not possible to avoid it. If God does allow sickness to come upon us, he has, on the other hand, given us reason and intelligence to prepare against and neutralize it. We have it in our power to investigate in such a thorough manner that it may be speedily removed when it comes, and also to avoid the conditions that are sure to produce it. The science and philosophy of prevention is much more valuable than the science and philosophy of cures. If people had the interest, and would make use of the means, and spend as much time to prevent sickness as they do to cure themselves when sickness exists, there would be much less suffering in the world, a large amount of valuable time saved for chosen pursuits, and a great many less doctors in the way, and fewer doctor-bills to pay.

Now, Brother Root, you have asked for more light on the subject of medicine, and, to make a point, you have asked a stupendous question: "Suppose I should drink a gallon of the strongest catnip tea that *could be made*, inside of 24 hours, would it do me any harm?" Now, first, let us look at the quantity; second, the conditions. The quantity would be 5⅓ ounces every hour, of the "strongest tea that could be made." The conditions would be twofold —first, on the side of the tea; second, on the part of the system. If the tea were taken warm it would have one effect; if hot, another; and if cold, still another. If taken warm, the effect would be nausea and sweating; if hot, such a terrible relaxation of the cutaneous vessels would follow, that the whole system would suffer: unless the cooling process were carefully guarded, I should have no desire to be the victim—the condition would be extremely dangerous; if taken cold, the effect would be tonic and stimulant. A woman could do two washings in one day under the influence of such tea, but she would not feel like washing her hands the next. I have known many women to drink an extra *strong* cup of tea on washing-day, and do no more work for a week. The philosophy of this process is plain. Over-stimulus incites to over-exertion, and both are injurious to health. You again ask, "Does not the warm drink do the work, many times, when the catnip has the credit?" I answer: If warm water possessed the properties needed to meet the conditions and wants of the system, that would be just the remedy; if it did not possess those properties, it would be no remedy at all, and valuable time would be lost. It is an admitted and well-known fact, that different substances possess different properties, and that different diseases demand different treatment. For a recent cold, a remedy that will open the pores and produce sweating is just *the remedy;* but who would think of using the same remedy for rheumatic or typhus fever, for inflammation of the eyes, or a sore toe? Now, when a fellow feels a "tremendous cold coming on," a rush for the stove, well fired up, is a rush in the right direction; and that "dipper of hot water with the feet in the oven" is a valuable remedy just at this time, and the circumstances *combine* to make quick work of that cold. The only unfortunate circumstance is, that the oven is only large enough to admit the feet. Now I am sure if some of that hot water in the dipper, say a pint, were turned upon half an ounce of dried catnip top, and used freely as the water, after steeping about three minutes, you would find a great improvement in the treatment, because the plant possesses properties that the water does not, and properties that are indicated strongly, and must be brought into use by employing some agent. I would not attempt to discard or lessen the use or benefit of water in its many modes of application, when directed by experience and good judgment; neither would I attempt to discard or lessen the value of any of the long-tried, well-tried, and successfully tried products of the vegetable kingdom. The majority of the best-known remedies in the world to-day are from the vegetable kingdom, and freely acknowledged as such by every medical school except the "Hydropathic." Water is the world's panacea in their estimation, and nowhere can any thing be found that is of equal value. Every pain can be stopped, every exalted condition can be reduced, and those too much reduced can be brought up to a healthy standard. Theory is beautiful, but practical benefits are more so. God has given us a beautiful vegetable world, and the value of their medical properties should be prized as highly as their external beauties, and the immense range of application where these properties may be employed to meet the wants of the human family are equally great as the range of the beautiful. Beauty is the value of the one, and healing and cleansing energy the value of the other. Beauty can rise no higher, for the zenith is reached. Philosophy and chemistry are luxuriant plants, and are rising to grander and more systematic proportions every day. N. L. HIGBIE.

Elsie, Mich.

Friend H., perhaps I was careless in saying a gallon in 24 hours. I simply meant, suppose I should drink *lots* of catnip tea. I admit, that you are right in one part of your reasoning; namely, that while a dipper of hot water would be an excellent thing for a *severe cold*, experience and common sense would indicate that it would have no effect whatever on a *sore toe*. If, however, instead of drinking the water, we dip the toe in it, I think it might have some effect. Very likely catnip has properties such as you suggest, and that it will hit the spot when such a remedy is needed, but produce no effect whatever when not needed. I believe in doctors, and we send for one occasionally; but I confess it is with a good deal the same feeling I should try to do something for a *severe* bee-sting. See my answer to G. A. Farrand, on page 903.

FOUL BROOD.

NOT CAUSED BY UNTIDINESS.

ALTHOUGH I have never had any foul brood since I have kept bees in this country, my eye (as a mattter of custom) is so suspicious that I should likely notice it as soon as opening such a hive, however little affected, or even outside. The reason is, that we were so much troubled with it the time I first learned how to work with bees. Some bee-keepers think that foul brood (if they believe in such a thing at all) is the consequence of untidiness about the hive; yes, some smart ones tell me that there is no need of getting such a thing. Such ones will find out, without need, where bee-keeping begins, as anybody in a good locality, and in a good season, can "milk the bees" with an extractor, and lose half in winter. This latter is not even necessary in a warm climate. I consider the last-named point of 100 times the importance of examining the bees before winter to see that every colony has a good queen, as even an expert can see that, very near to the entrance of his hives. Even suppose a colony would have no queen, it would be of little or no future consequence; whereas, if one colony had contracted foul brood, and it were overlooked in the spring also, the next season the whole apiary would likely be affected, and worse yet; his neighbors' also, and finally he would sell some of his honey far away for some one to feed his bees with, or rob it from some grocery-store. You see, friend Root, I think that every bee-keeper should know something about foul brood, as well as that every doctor should know something about cholera morbus. In your own case I think the most and least work you can do (as is the rule in many cases), is to do nothing, comparatively, as the season is, so to say, near with you, and not ship or sell any bees anyhow this season. I would only keep an eye on the affected and suspected ones, and examine such with customary care, and treat them; mark each, and keep them strictly separate. After all have gone out of brood, it is an easy matter to detect any affected ones, should there be any. It would be too much of a risk to open so many now, on account of robbing; for in hard times for bees they will often smell and try hard to enter hives the next day that have been opened the evening previous. The bees of any affected colony found in the fall can be shaken out from the combs; and, after a day's fasting in a box, put on a sufficient number of clean combs, and feed on good honey or sugar for winter.

I do not as yet take any stock in curing foul brood with acids; and even if it could be done, I consider it too laborious, without any apparent reward, especially since we have foundation; but I would put a few drops of acetic acid in the feed to prevent or expel bad odors from the hive, which is also a sure preventive for keeping sugar syrup from granulating. The odor is, or seems to be, very much liked by the bees, as well as by most men. I have always used it when I had to feed any sugar for winter. A slight scent of this agreeable odor will remain in the hive all winter.

Hammonton, N. J. C. H. LUTTGENS.

Friend L., I am glad you have called attention to the very serious consequences that may result from a little carelessness where foul brood is around. Prevention is surely better and easier than cure, especially where you contemplate curing a whole apiary or a whole neighborhood.

FRIEND TUTTLE'S PHOTOS OF PROMINENT BEE-MEN.

SOME CORRECTIONS IN REGARD TO OUR NOTICE.

I NOTICE in the last number of GLEANINGS your remarks on my new photograph of bee-keepers. While I thank you for some of the things you have said in its favor, I think you have done me an injustice by representing it to be essentially the same as yours. You say a *large proportion* of the pictures are the same as are in your medley, while, in fact, only 26 persons out of the 120 are in your medley at all, and 20 of these are copied from photos taken since your medley was made; so in reality there are only six in mine that are the same as they are in yours; namely, Kirtland, Wagner, Parsons, Grimm, Cary, and Gallup. I have been very careful to secure good portraits, and many of them were taken on purpose for me. I have also been careful to use only such as have become well known by reputation (one or two excepted). Instead of giving the size of my picture as 11x14, which it really is, you have measured the bare print, and called it 8½x11; while your picture, measured in the same way, would be 9x10½, instead of 11x14, as you advertise. E. O. TUTTLE.

Bristol, Vt., Nov. 9, 1886.

Friend T., I had no thought of doing anybody an injustice; but, of course, I did not take time to count up the names as you have done. In regard to the size, if you and I, both of us, have been giving the size of the cardboard on which the photograph is pasted, I think we had both better be straightened up, and I thank you for calling our attention to the error in our price list.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Oct. 15.

CHAPTER XXVIII.

Wise men lay up knowledge.—PROV. 10: 14.

It is now November; and as many have inquired in regard to the workings of the New Agriculture during the past summer, I will go over the ground a little. In the first place, I have been much better pleased with its working on the low ground, inclined to wetness, than on the uplands and hillsides. Perhaps this is largely owing to the fact that the summer of 1886 has been an exceedingly dry one, especially in many localities — so much so that our reservoirs became perfectly dry, and but few of the rains were sufficient in volume to fill them up. Under these circumstances the ground was simply excellently underdrained, and nothing more —that is, so far as the reservoirs were concerned. Mixing manure through the soil to a depth of 18 inches or 2 feet produces wonderful crops, as a matter of course; but our beds near the factory, where exhaust steam was permitted to go under them, were covered with such a depth of earth over the reservoirs that the roots of but few plants could reach the water. The reason of putting our reservoirs so low was, as I have before explained, to avoid injuring the plants by too much heat.

We commenced planting seeds and putting out plants, as you may remember, some time in February. Peas were planted in the open ground over these reservoirs, Feb. 10, and they yielded a crop of nice pods the fore part of April. Cabbage-plants taken from the greenhouse, and put beside the peas at the same date, were, for a time, protected by a sash to harden them off; but after two or three weeks they, too, were allowed to stand without any protection. They were repeatedly buried up in the snow, but the ground did not freeze, owing to the heat underneath. The plants made a vigorous growth, and were just as good as cold-frame plants, so far as I could discover. A few were left on this ground, producing heads of cabbage in April that weighed, some of them, 10 lbs.; and as we received for them 3 cts. per lb., we got 30 cts. for a few single heads of cabbage.

After the cabbage we put on beets and lettuce, of which I have written you. The lettuce sold readily in May at 5 cts. per head each. You will remember we started another crop between the rows when we were marketing one crop. After the lettuce, we put out cucumbers which were started in the greenhouse. It took some little time for the roots to get down into the reservoirs beneath; but when they did, they gave an enormous crop of cucumbers, which grew so rapidly sometimes that we picked them every day. These cucumbers, coming much in advance of any raised in the open air, sold readily at a good price.

After the cucumbers, we raised a fine lot of turnip-plants; and when these were put out in the open field the bed was cropped with lettuce, which now covers the ground, and the plants are so large and thrifty that they are an astonishment to every passer-by. The year is not up yet, and will not be until next February; yet this ground has given us *five paying crops*, and many of the crops not only paid, but they paid handsomely. Of course, the ground was heavily manured. The two feet of soil that covers the stone reservoirs contained, perhaps, six inches of manure; but, my friends, will it not pay, and especially will it not pay for those who have *time* on their hands, with nothing to do? And this book, as you may remember, is written mainly for this class.

A squash-vine, started in the greenhouse, and put out in June, made very slow growth for a time, but it finally started an immense squash, which in time got so heavy that it broke the vine that bore it — said vine being run over a trellis. I told father Cole about it, and he said I should have made a platform or shelf under the squash. Another one grew to an enormous size, and we finally sold about half a dozen in all from one vine. The quality was excellent.

Some time in the latter part of July or fore part of August a pumpkin-vine came up of itself. Nobody thought it could possibly ripen any pumpkins; but the single vine produced six, and ripened them all. The growth was most astonishing. I presume vines of all kinds send their roots down at once into the reservoirs; and when they get there they make a growth that is really surprising. Some strawberry-plants were started in March, and they bore a crop of fine large berries, but we expect greater results from these next season. Pie-plant promises wonderfully. We have not tested the matter on asparagus, but propose to another season.

Such a plot of ground may be worked on, not only evenings, but on rainy days. If it rains hard, fix a temporary covering over you, of the shutters or sash, used in the winter time. Of course, the aid of exhaust steam, such as we use, will not very likely be at the command of many of our readers; but this exhaust steam is of no particular use from the first of April until the first of October; and by the aid of sash we can make plants grow nicely through March and October — yes, and through a great part of November, without bottom heat, especially where we have ground that is enriched to two feet in depth.

Perhaps the greatest satisfaction I have received in the use of the New Agriculture has been in making the swamp-holes and waste places on our 18 acres the most productive spots we have. When I bought the place, a small stream which we call Champion Brook meandered across our low ground, traveling over more than twice the distance it would make in going straight across, as such brooks usually do. In fact, our whole creek bottom has been at different times washed over and cut up by this Champion Brook. Well, my first work six or seven years ago was to make Champion Brook go straight from where it came on to my land, to the point where it passed off. This left the old creek-bed, and in many places it had washed great holes down to the bed-rock. These holes have been a bother and a nuisance until the present season. During the past summer, as I have told you, we have scooped out the contents, clear down to the rock, in many places, and I tell you it was real fun to do it — especially as the dry season greatly favored the work. These holes were then a receptacle for all the stone, tinware, boots, and shoes, and every thing that could be collected on the place; and during the past season we have been grubbing out the stumps, and using them to fill these gullies and holes. We make the surface level, then cover it with tinware, or something that will not decay, then down come the banks to the sides, until we can run both plow and cultivator right over them, without any danger of striking or tearing up the stumps or tinware. Of course, these holes are full of water, or, at least, as full as the outlets described in Chapter V. allow them to get. We want the water to come within a foot or 18 inches of the surface of the soil, but no higher. Our crops over these places have been wonderful. I was pleased to see even friend Terry express his admiration and satisfaction at the looks of my potatoes, celery, and other crops. Celery seems to revel in such a situation. Our plants on the creek bottom are to-day looking as bright and green as they have been during any part of the year, and it is now the 2d day of November. Last week we dug some roots that weighed fully 3 lbs. each. At 5 cts. per lb. this is 15 cts. per root, which makes quite a satisfactory return for labor and capital employed.

In order to see whether our celery compared favorably with the best raised anywhere else, I have had samples of the finest from Michigan, from Cleveland, O., and even from the Arlington market-gardens, near Boston. Some of the Arlington celery weighed 3 lbs. to the root; but it was on account of the enormous suckers growing around the sides. I should call ours ahead of any thing that we have seen. Of course, fine tilth, with plenty of moisture, and not too much, are not the only things wanted: we must have manure also; and I think it will pay well to manure the very best ground that can be found anywhere—at least, such is my experience. And this brings us to a second consideration of the subject of manures, for our next chapter.

CHAPTER XXIX.

And the dresser of his vineyard said unto him, Lord, let it alone this year also, till I shall dig about it, and dung it.—LUKE 13:8.

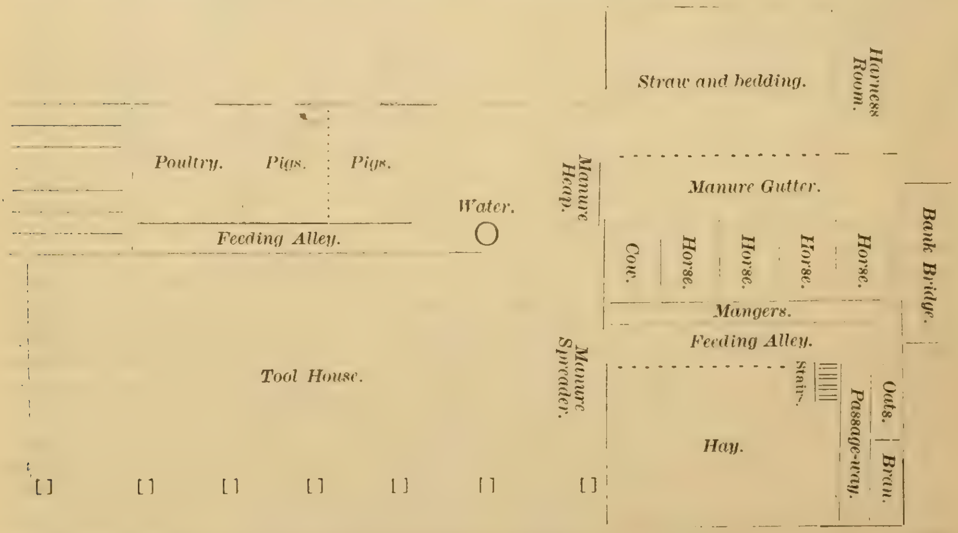
I have given the above little verse a place here, not to point you to the moral contained in the parable, but to call attention to the fact that it was customary, even at the time the Savior was upon the earth, to use the dung from animals for enriching the soil, and for the encouragement of vegetation. In former chapters I have given you something of a talk on manures. In this chapter I propose to discuss saving and making manures on our own premises. Of course, the market-gardener will expect to buy a good deal of manure; but as a penny saved is a penny earned, he should by all means economize every scrap and every product on his own place. I used to think I never wanted a pig on the premises; in fact, my taste did not run that way. When I was a boy it used to be my business to care for the pig, and perhaps I naturally became prejudiced, because it was a kind of work I never enjoyed. A great many times I forgot to feed the pig. How differently we look at things when we become an interested party! For a good many years, one after another of my men would tell me, "Mr. Root, you should keep a pig;" or, "Mr. Root, you throw away trash enough all the while to keep a couple of pigs," etc. Finally, some of the older men whom I employ, and who have probably had more or less experience in farming, would remark to me, that there was nothing like hog-manure to make certain vegetables grow, etc. Very often I would reply, that I would not have them grow if they could not be managed with something a little more pleasant to have around; but since I have got the gardening-fever, we are pressing into service almost all kinds of domestic animals—the horses, cow, poultry, and, finally, the pigs. During the past three months I do not think our pigs have had a scrap of any thing except the refuse that would have gone into the compost heap direct. When the pen gets to smelling badly in hot weather, we throw in some dry straw or litter, or the coarse manure from the stables; and in a twinkling the pigs roll it over and over, and mix it up more thoroughly than any gardener could do it with spade and fork, if he tried ever so hard. When the accumulation is sufficient, it goes into the manure-spreader, and the Acme harrow quickly mixes it up with the fresh dirt.

May be, my friend, you are a poor man, and have little or no live stock about you; but I can hardly imagine how you can be too poor to afford to keep a pig: yes, a pig and some chickens. Perhaps the chickens might come first, because they pay back your money almost the first day you get them. Piggy does not do as well as that, but it does not cost very much cash out to keep him, and he is always worth a certain amount of clean cash, even if he is not a very clean fellow himself. A pig may, however, be managed so as to be a tolerably clean animal. You do not want any ring in the nose of your pig. Our first pair of pigs came with rings in their noses. For our ranch we want the best rooter that can be procured; then give him a good pen, and dump in the rubbish. If you are so unfortunate or so thoughtless as to let weeds grow on your premises, gather up the weeds and give them to piggy. Have a pail specially for piggy's use; and I think it will be a very good thing to have the word "Piggy" on this pail; or you can put it "Piggy's Pail," if you choose; then get all the family interested in seeing how much of a contribution can be made for his pigship. Give him all weeds, grass from the roadside, leaves from the forest and fruit-trees. Save every rotten potato, every apple and apple-core, shells of nuts that the children have cracked, potato-peelings, potato-tops, cabbage-leaves, cabbage-stumps, melon-rinds, pumpkin-parings, and every thing you can think of that is fit to eat, or that will decay when composted. Piggy's yard will be wet enough without the addition of water to the compost, especially if the yard is not covered over; and whenever it gets too wet, put in some absorbent such as peat, sawdust, straw, forest-leaves, or any thing of that sort. You and he are going into the manure-business, and both of you are to see how much can be manufactured, and of the very best quality. If you keep a horse, you can give the pig the bedding, together with the manure that comes from the horse-stables. If your poultry-house is near by, I think it an excellent plan to let piggy stir it up with the horse-manure also.

A question comes in just now that has been largely discussed at farmers' institutes, and through agricultural papers.

WHAT IS THE BEST PLAN FOR SAVING MANURE?

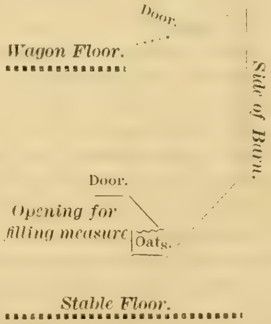
I believe that the general decision has been, that it pays to have manure under cover. One thing is very certain, however, and that is, that it does not pay to let manure of any kind get hot and burn up. Manure that is well worth a dollar a load may be, by a little carelessness, soon made worth no more than 25 cts. a load; and if you leave your manure exposed to the weather, its value largely depends upon the amount of rain. If the manure is spread out so the heap is level on top, and not too deep, it may catch rain enough to cause it to decompose nicely; but I think this is too hap-hazard a way. Our best authorities, in fact, seem to agree pretty well that a much safer way than this would be to spread the manure on the land just as fast as it is taken out of the stables, and may be this is the proper way to do it in any event. It is, however, a pretty hard matter to carry the manure to the very spot you want it, as often as you clean your stables. The weather may be unfit, for instance. On this account I would try to have the manure-bed under cover; and I would, if possible, have abundance of water so near by that you can wet the heap whenever you find it needful. Stirring up can be done cheaper by the pigs than in any other way. Perhaps it may be well to state, before we go further, that a good many might object to the quality of the pork, providing the pigs were used simply as machines for making manure. But, do not be in haste, dear friends, to condemn our methods. When you get ready to fatten a chicken, a pig, or a "critter," you want to commence a system of feeding, to produce nice meat. I believe that corn-fed animals are considered worth most in the market; and friend Peirce, who wrote our book on carp culture, once assured me that the Jersey chickens, which commanded a better price in New York, Philadelphia, and Boston, than any other chickens, owed their well-earned reputation to the fact that, before being sent to market, they were fed for several weeks on corn diet exclusively. Even our new food fish, the German carp, require some such treatment to have it do its best as a table fish. Well, if we are going to be obliged to keep our pigs exclusively on corn for several weeks, what shall we do with our refuse matter meanwhile? Why, my friend, you want your pig-pen in two apartments, and keep those animals which are under process of fattening, in a separate apartment from those used exclusively for manure-making. In fact, I have just bought two more pigs today, to take the place of those that have not had a particle of any kind of grain, or even bran or middlings, for the past four months. Now you see we are coming to the consideration of the matter of pig-pens, poultry-houses, cow-stables, and horse-stables. My barn, stables, pig-pens, and poultry-house, were all burned down last March, so I have had an opportunity this summer of building entirely new. When I began to consider the subject in all its bearings, and to read the books and papers treating especially on these matters, I came to the conclusion that it was a very important matter indeed to have convenient buildings; and as friend Terry who wrote the Potato-book, and the book on the winter care of horses and cattle, lives less than forty miles from me, I wrote him to come and help me plan my new barn with the other buildings, and that I would pay him well for his time and trouble. He not only came promptly, but he brought another man with him who is a prominent teacher through the agricultural papers, in the dairy-business. I mean Mr. Gould. This gentleman is the one who writes for the *Ohio Farmer* under the name of "Sam." Mr. Terry sat down by the side of an experienced builder, and, with the assistance of a man who is also conversant with horses, we fixed upon the plan which I illustrate by the diagram below. The barn is now built; and so many judges have pronounced it the most convenient barn and stable that "ever was," I feel that it may be a help to have you look it over with me.



BARN, HORSE-STABLE, PIG-PEN, AND POULTRY-HOUSE, DESIGNED BY T. B. TERRY, OF HUDSON, O., WITH SOME ASSISTANCE FROM THE AUTHOR OF THIS BOOK.

We will commence with the horses, for they are not only the largest producers of manure, but, I believe, for general purposes horse-manure is considered the best manure. The horse is usually the most important personage in the barn, or among our domestic animals. In our diagram I have shown places for four horses, although we use only two, as a general thing. When work is crowding, or if one of the horses should happen to be temporarily disabled, we get another horse from a neighbor; and then it is very handy to have an extra stall for a visitor's horse or horses. Of course, many of the friends will not want so spacious outbuildings as I have figured, but the principles can be carried out with the smallest stable, pig-pen, or poultry-house.

What shall the horses stand on? was one of the first questions I asked friend Terry. He replied, that the best material for the stable-floor that he knew of was made of small stones and gravel, filled in with cement, but that he would lay inch boards in the stall (over this stone floor) for the horses to stand on, as the wood is drier and warmer than the stone floor. The gutter for manure back of the horses is clean stone (or cement), but sunk a little so it will take all the moist and liquid portions of the manure. Right back of the cow-stable there is a sliding-door that communicates with a sort of box stall, where the manure is piled until it can be drawn out. The manure-spreader stands in the tool-house, ready to be backed up to the manure heap at any time, or it can stand in the place of the manure heap. the manure being pitched from the stables on to a wheelbarrow, and then run right up to the spreader. This box stall, as we call it, is also the general watering-place. Ours is fed by the water-works of the town; and it is very convenient indeed to have running water. Where there is a spring, it can often be brought into the barn in this way. If there is none, have a well or cistern about where I have marked, Water. If you have a couple of bars across from the watering-tank to the cow-stable, you can turn the horses and cattle loose in this box stall, and let them drink at their leisure while you are cleaning the stables and fixing the bedding. Right back of the horses and cattle there is a bay for straw and bedding. Before cold weather comes, this bay should be filled clear to the upper floor. The bay for hay on the opposite side of the barn should also be filled to the upper floor. Then the stock have a wall behind them of straw, and a wall in front of them of hay, a bank bridge on the north, and the tool-house and manure-shed on the south, while above them is the main floor on which teams go in with hay, straw, oats, or other produce. You see this makes a pretty warm barn, even if built on level ground. The bank bridge is walled up with stone, about ten feet back from the barn. The bridge itself is matched plank, put together with paint, so it is water-tight. The sliding-door under this bridge gives access to the stable, so you see we have a sort of "storm-door," as it were, to keep the wind from blowing in when the stable-door is opened. There is also a sliding-door opening from the stables to the manure heap. The feeding-alley is just wide enough to allow one to pass and feed the animals conveniently. The oats are close to the feeding-alley, in a bin that holds about 600 bushels. A little door at a convenient height opens into the passageway, and you can dip up a measure full of oats by reaching in this little door, so long as there are any oats in the bin. The accompanying diagram will show you how the opening is made:



A CONVENIENT OAT-BIN FOR A BANK-BARN.

Another similar bin is made for bran, corn, or whatever else you choose. You can have a barrel of salt at the further end of the passageway, near the bran-bin. The stairs lead from the feeding-alley on to the upper floor. We are using the fanning-mill to-day on the upper floor, and it is placed so that the chaff and dust all flies over into the straw and bedding mow. In fact, we throw every thing into this heap of straw—rubbish of all kinds, left after saving the seeds of garden vegetables, husks, chaff, etc. Some may object, that the seeds may, by this means, get into the manure; but with the thorough cultivation we give our field crops we do not feel very much afraid of plants that are not wanted. They will have a tough time of it to make a growth, even if they try. The manure from the cow is handled exactly like that from the horses; and we think it an excellent plan to have it mixed in with the horse-manure, to prevent heating. Now, the shed that covers the manure heap is prolonged, as you will observe, so as to make a sort of "box stall;" and directly south of this "box stall" are two pig-pens. One of these is for the pigs that are large enough to be given grain, with a view of fattening. The other is for the little pigs that have the trash. There are sliding-windows to communicate with the open air, opening into each one of the pig-pens. These windows are for ventilation, and to permit unloading rubbish from a wagon or wheelbarrow, directly into the pig-pen. Manure can be thrown out of these sliding-windows also, or the manure-spreader can be backed around against the pig-pen nearest the water-tank. If your pigs are disposed to be friendly to each other, the passageway between the two pens can be opened, permitting them all to run in together. If you have a gate to this passageway so it will operate easily, you can fill the feeding-trough for the pigs in one apartment while they are in the other. Then open the gate and let them through. In this way you can oblige them to behave themselves a little decorously while you are pouring the feed into the trough. Of course, there is a trough for each apartment; and as the pigs generally all go into one apartment or the other, you can put your feed into the trough belonging to the vacant apartment before you open the sliding-doors.

Beyond the pig-pen we come to the poultry-house. This has a sliding-window of double width, or, rather, two sash, one sliding to the south and the other to the north. Besides this, at the south of the poultry-house proper is a little room, all covered with glass, greenhouse fashion. This glass reaches from one foot above the ground, up to within about two feet of the ceiling of the roosting-apartment; and under this sash the fowls are supposed to stay during sunny days in the winter time. I have figured a good deal in regard to nests and feeding-boxes, and have finally concluded that the best nest for hens I know of is a barrel half filled with oats. You may have barrels half filled with buckwheat, wheat-screenings, or other grains, if you choose. If your hen's-nest gets soiled and dirty, let the fowls eat up the grain, burn up the barrel, and get another one. If you object, that rats and mice can climb up the sides of a barrel too easily, have a barrel made with the sides of cheap tin. Your tinsmith has very often rusty or damaged tin that he will sell at a low price. Such a hen's-nest can not very well be infested with vermin—that is, if the contents are renewed often; and if it is grain for fowls to eat, I presume it would be. This fowl-house was intended for the fowls to run out whenever the weather permits. The roosts are on the north side; and during very severe weather a curtain of some cheap coarse cloth, such as burlap, may be let down over the greenhouse sash, and also over the sliding-windows. The wall of the partitions, as well as the ceilings, is protected by matched ceilings and tarred paper.

With the above arrangement you have your domestic animals comfortably housed, and so conveniently distributed that feeding is only a pleasure. You have plenty of room in the tool-house for all of your tools, machines, and wagons, used on the premises. A full description of this tool-house will be found in our book, "The Winter Care of Horses and Cattle," p. 720, 1885. I confess I feel a little proud of this arrangement for farm stock; and, simple as it seems, a great deal of hard work was done on it before we decided on its present form. If you have ever noticed it, the amount of time required to do the work about the barn—hitching up teams, feeding and watering, is such that it is of the greatest importance that we have things handy. With such an arrangement as the above, you might do in 15 minutes the work that would require *one hour*, with poor facilities, before you could start in for a day's work. When the plan was worked out we had, in fact, a little *convention* of practical men. First, we had friend Terry, who has been studying on this problem for years. Then friend Gould, who is a dairy-man, and who has made the care of cattle his lifelong study. Besides, the foreman of our wood-working factory, who has had some experience in planning and making buildings. Then my neighbor Harrington advised some, and he is a farmer of many years' experience, as well as a bee-keeper. The man who has care of our horses also gave many suggestions in regard to the stables, conveniences for water, feed, etc.; and he is one of the best men to take care of horses I ever met. The practical workings of the building please us so much I do not know of a thing that I would have changed.

I have told you how we get in our hay and straw. Well, suppose we have a load of oats to put away. The load is driven up the bank bridge on the main floor, right over the horses; the door to the oat-bin is swung back, and the bags are emptied right off from the wagon, right into this bin. The oats are never handled any more until they run themselves right down within arm's reach of the horses' manger. These bins for grain are made rat-proof. The cement floor makes it impossible for rats to dig holes in or around the barn. If rats or mice trouble me in the poultry-house I will put wire netting about six inches underneath the surface of the ground which forms the floor. I greatly prefer a dirt floor for fowls. A deep trench around the outside keeps the water away so the inside is always like dry dust. Peat from the swamp forms a good absorbing material to be placed under the roosts.

Now, then: The horses do our work and manufacture an excellent manure; the cow furnishes milk and butter, and also contributes largely to the manure heap; the pigs chew up and dig up all the trash and refuse from the table or the garden, orchard, etc. They convert this into manure, and give us pork, ham, etc. The poultry, next door, furnish eggs to go with the ham, and also give us a very valuable addition to the manure heap, before mentioned. The pigs work it in thoroughly, stirring it up without charging a cent. The business of the owner is to reward these friends of ours for their contributions by giving them nice clean warm quarters, perfectly protected from the weather, abundance of good food at just the proper time, and (I hope) lots of encouraging and loving words. He certainly can afford it, even if he does not—don't you think so, my friend? Is it *your* custom to make friends with your horse, your cow, your pigs, and your chickens? All these friends of ours are fond of a variety in their food; and they appreciate, more keenly than many people imagine, any little act of kindness in the way of delicacies. Almost any horse will learn to beg for apples whenever his keeper comes around him, after he has been treated to fruit just a few times. Apples that have been blown off the trees by the high winds can frequently be purchased at a very small price. We have just bought a load of forty bushels, at only five cents a bushel. A good many of them had commenced to decay after they were gathered, was one reason why we got them at this low price. Well, we commenced giving them to the horses, at the rate of about a peck a day. We soon found the Jersey cow, too, was very fond of them; and finally the chickens gave us to understand that they relished fruit also, by getting up on to the wagon and pecking the very largest and nicest apples on the load. We took the hint, and now they have all they want to eat. To-day it is stormy and cold, and the ground is covered with snow; but the chickens are under their glass sash, scratching wheat from among a pile of forest-leaves, and pecking apples for a change. Even the pigs, too, receive their share of the big forty-bushel wagon-load, and I am inclined to think it would be a good investment, even if the apples had cost us ten cents instead of five cents. Dear reader, is it true, that you let apples go to waste on the ground, when your horses and cattle, chickens and pigs, will appreciate them, as our domestic animals do?

CHAPTER XXX.

And let them have dominion over the fish of the sea, and over the fowl of the air, and over all the earth, and over every creeping thing that creepeth upon the earth.—GEN. 1: 28.

It is really surprising to see how often these four kinds of dumb friends of ours that I have been talking about in the preceding chapter can be brought in play to aid the market-gardener. As an illustration: We now sell potatoes on our market-wagon, and it has not taken us long to learn how quickly good potatoes go off at a good price, where poor and indifferent ones will hardly sell at all. One great trouble with potatoes is the damage occasioned them by grubs. Very often the nicest specimens you raise will be gnawed into, and made unsightly-looking, by these same pests. What is the remedy? Well, some tell us there is no remedy. If you raise potatoes on sod ground, you will have them scabby and eaten. But, hold on a bit, my friend. Suppose you have made friends of your chickens, so that they like to be around you. We have just been plowing on the creek bottom, and I noticed, as the nice ground was turned up, one of these grubs. I got an ear of corn and called my flock of Brahmas. A few grains scattered in the furrow after the plowman, did the business. After that the chickens were up (and dressed and had their faces washed, so to speak), ready to follow the plow as soon as the first furrow was turned in the morning; and didn't they look animated and happy, as they gobbled up the grubs—yes, and worms and insects of other kinds? Pretty soon the three hens that stole their nests, and gave me three broods of chickens in September, found out what was going on, and they, too, began following the plow. Of course, there are times when it is not so pleasant to have the fowls chasing after you. Then you want to shut them up in a spacious yard made of poultry-netting. But by a little planning you can have them to clean your ground pretty thoroughly of most of the pests of the kind I have spoken of. I have been told, that a flock of ducks will rid a large patch of potatoes of the potato-bug, but I have never had an opportunity of testing the matter. If this be so, it seems to me that friend Terry could afford to buy a brood of ducks, instead of employing so many men and boys to do that which the ducks could do so very much easier, quicker, and better. I have told you, in former chapters, how we employ very small chickens to rid the greenhouse of the green fly.

A few days ago a friend was discussing as to whether a garden can have too much manure. He said the result would be, the ground would be so full of angle-worms that nothing could be raised. This may be, in some measure, true; for angle-worms have troubled us by getting into the stalks of celery on our most heavily manured ground. I do not know that they do any harm, but they alarm customers, when they find there are worms in the celery. Another thing, I think very likely that angle-worms consume a valuable portion of the manure. Do you want to know the remedy? Gather all the fowls on the premises about you, then plow, cultivate, and harrow the ground where the angle-worms are troublesome, and I think the biddies will clear them out to your perfect satisfaction, and at small expense.

The finest plum-orchard I ever saw, I believe, was in a poultry-yard. Enough poultry was kept so the ground was perfectly bare under the plum-trees. Not a weed nor speck of vegetation of any kind could obtain a foothold. As a consequence, the curculio, when shaken from the trees, was captured by the fowls, which had thoroughly learned the trade. And, in fact, they not only gobbled every weed as soon as it showed itself, but they took every thing in the way of an insect from the smooth hard ground. The poultry paid a good profit, and the plum-trees bore enormously. The ground was, of course, underdrained, and fertilized up to a high state of cultivation before the poultry-yard was established. Mr. Jas. Mattoon, of Atwater, Portage Co., O., is the man who owns the plum-orchard and poultry-yard, and he told me he had just received $200 for his plum-crop.

The apple-worm, that is such a pest to fruit-growers, is the larva of the codlin moth, and for a time it seemed as if there were no remedy for wormy apples. By keeping pigs, however, under the apple-trees, in the same way that friend Mattoon keeps the poultry under the plum-trees, every wormy apple is devoured so quickly that no larva ever reaches the moth stages of existence, and in the course of time the orchard bears large fine apples, without any worm at the core. It is not at all likely that this subject of making these dumb friends of ours assist in destroying the insect-enemies of fine fruits and vegetables has by any means been fully explored; but rewards like those I have mentioned above are in store for the man who loves his poultry and pigs, and cattle and horses. Study their habits; study their tastes; recognize them as your neighbors, given by a wise and kind Father, to minister to our comfort and happiness, and you will find, on more intimate acquaintance, that they have abilities and qualifications to assist you in your work; yes, even during some of your grievous trials and troubles, that you would never dream of had you not cultivated these intimate and friendly relations of which I have been speaking.

To be continued Dec. 15, 1886.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

WHICH QUEEN IS IN THE HIVE?

I AM at a loss to know which queen reigns in a colony of bees I have. The colony was made some time in May, with a cell ready to hatch. Some ten days after, I opened the hive to see if the queen was laying. The bees balled the queen on sight. I gave them some smoke, and they released her; but that was the last I saw of her. I gave them queen-cells at different times through the season, but I could never discover any queen or eggs; but when I extracted buckwheat honey I gave them combs containing drones ready to hatch, which they accepted, also some brood of worker-bees. On receiving a Carniolan queen from F. Benton, I thought this colony would receive her gladly. After caging her 24 hours, as the bees seemed all reconciled to her, I released her; and 24 hours after, I found her, or another queen, at the entrance, dead. On giving them a frame of brood they began to build queen-cells; but I thought I *would* have my way, so I sent to Dr. Morrison and got a $1.00 Carniolan queen; and after destroying the cells I introduced No. 2. In 24 hours they had released her by eating the comb under the Peet cage, and a dead queen was at the entrance. As it was late in the season I gave up trying to queen them. But when fixing them for winter I found they had a large yellow queen, and no brood. She had been balled, as she was minus the fine hair on body, and her wings were badly split. Now, I am badly puzzled to know which queen is in that hive. S. HEATH.

Rimer, Pa., Nov. 5, 1886.

Friend H., I am inclined to believe that both the Carniolan queens you introduced were killed, and that the queen they now have is another queen. It is not uncommon for a young queen, after her wedding-flight, to return to the wrong hive, and therefore I think the present queen simply came there. No doubt she had been balled; but if bees are left to themselves they will sometimes let the queen alone, even after balling her. Next season's progeny of this queen will tell you whether I am right or not. As it was late in the season, you found no brood in the hive.

WHAT SHALL BE DONE IN CASES OF SEVERE STINGING?—IMMERSION IN WATER EFFECTIVE.

I noticed in GLEANINGS, page 667, the question: "What shall be done in case of severe stinging?" While placing my bees on their summer stands last spring, one swarm "went" for the hired man, and somehow got under his bee-veil, and stung him on the right cord in the back of the neck, and on the septum of the nose. Very soon he became blind, and his left side seemed touched with paralysis, and he fell to the ground. He was seized with a dreadful sensation, and throbbing in his head, and violent wrenching in his stomach. Great drops of perspiration stood out on his forehead, and his face became as spotted as an adder. I ran to the house for the camphor-bottle (I had seen this used with good effect while assisting at the amputation-table in the army, in the late war). It was the only available remedy at hand. I sopped the camphor all over his head and face (eyes excepted). By that time aid arrived, and we took him into the house. We at once gave him a few drops of spirits of camphor in some water, and in about ten or fifteen minutes we gave a second dose in whisky. We were about to send for a doctor, as we all began to think he would die; but the second dose of camphor went to the spot, and so far relieved him that all fear of death was passed; but it was not until the next day that he could get about. No doubt this was the effect of a nerve being stung; but for a flesh-sting I have found water to be better than either carbolic acid or borax. In most cases, if water or saliva is applied it will prevent any swelling; and if kept wet it will soon stop all pain. A neighbor says, that when he was a boy he once assisted a veterinary surgeon to relieve a valuable yoke of oxen. The oxen turned over a bee-hive, and the enraged bees stung them all over until the owner supposed they would die. The surgeon ordered the oxen to be wound up in carpets dipped in water. They were then driven into the river, and water was bailed on them until they were relieved. Water seems to enter the cavity made by the sting, and dilutes the poison until it is rendered powerless. It also reduces the heat which is caused by bee-poison. Why should not water be a good remedy for bee-poison, if hogs can cure themselves of rattlesnake-bites by lying in the mud and water until the poison has lost its deadly power? G. A. FARRAND.

Rockport, O.

Friend F., do you not see that, in the cases you have cited above, it is almost if not quite impossible to say that the sufferers would not have recovered just as soon had nothing been done? Don't think me contrary or headstrong in the matter; but I earnestly desire to get at the exact truth. I have tried water—cold, warm, and hot—for bee-stings, and I have tried it by immersing my hand right in the water, when stung, until I am sure the water has no effect on *myself* whatever. A sprain or a bruise is relieved instantly by immersing the part affected in water as hot as it can be borne; but with me, the same treatment does not seem to touch the poison of the bee-sting at all. Where bee-stings produce dangerous symptoms like those you mention, I do not know but that I myself would try the remedies you suggest, because it seems terrible not to do any thing at all when a friend is in such distress and danger; but for all that, the experience I have had strongly inclines me to think that neither water nor camphor, nor, in fact, any thing that I know of, unless it be extracting the sting as quickly as possible, has any effect whatever upon the pain or swelling. It is exceedingly important that we should have all the light we can get upon this subject; and I would therefore recommend that intelligent bee-keepers make thorough and extensive experiments to enable us to decide what to do in case of severe stings, or to decide if there is any thing we can do to help the matter.

A POINTER ABOUT EXTRACTING, AND HOW TO PREVENT ROBBING.

About two weeks ago I extracted honey from 5 hives, and placed the combs *back* on two of the same, taking away the combs and upper stories *completely, from* 3 of them. Now for the pointer: The two where I placed the combs *back* had a considerable row with robbers, while I did not see a single robber around the other three. Do you not think that my cleaning up the hive so as not to leave a scent of honey prevented the robbers from discovering any thing wrong with the three, while the scent of the extracted combs in the others attracted the robbers? This may not be worth much to the veterans, but I consider it worth a good deal to the novice. M. BROERS, 3—24—27.

Gonzales, Tex., Nov. 2, 1886.

I have observed the same thing before, friend B. Thanks for your calling attention to it, nevertheless. It seems to me, however, you do not finish the subject. If we take combs away from the bees, without putting any empty combs back after the honey has been extracted, there will be no robbing, but what shall we do with these empty combs? I would say, Return them by moonlight; and before the bees are flying next morning, every thing will be cleaned up and put away.

THE STENCH FROM DEAD BEES; CATNIP, ETC.

GLEANINGS is always a welcome visitor, as you, with the assistance of a corps of writers, give us A B C fellows no small amount of information we so much stand in need of. I am glad you have got ahead of your foul brood. My bees are all right now, though some time since, when I raised the cover of a certain hive, the stench that came up from dead bees made me sick, for I had been reading of foul brood. I thought I had it; but it was old bees that were dead, not brood.

If it had not been for friend Higbie's catnip, our bees in this section would have died this winter, or would have had to be fed their winter supplies; but they are all right. I agree with friend Swinson, that it won't do to go for "big ads" all the time. He filled my order last spring for queens, when some others were months in doing it. Let me say, that I got one of the best red-clover queens of him I ever saw, if such queens exist—at least, her bees made honey from red clover when none of the others did. W. K. JAMES.

Loudon, Tenn., Nov. 7, 1886.

MY METHOD OF UNITING WEAK COLONIES.

The colony I wish to keep, I prepare to receive the new colony by simply turning up a small corner of the enameled cloth at the back corner of the hive, and then set the one to unite on top, and leave them two days. Then I remove the cloth from between them, and in a day or two, as convenient, I arrange their brood and comb as desired. By this method very few bees will ever leave for their old stand. Sometimes I put several stories on top this way, or as many as I may wish to make a colony to suit my purposes. My management, first, is for queen-rearing in early spring—February, March, and April. All queens that I can raise then are sold, so that I have only enough left to leave one queen to three or four nuclei, which I pile on top, as above named. Then I am ready for honey with rousing colonies; for my nuclei contain 10 frames, 9⅛ x 13½ inches, outside dimensions. In September I break them up into nuclei again, and rear as many queens as I can, and what I lack I have been buying—some of our Kentucky friend, J. T. Wilson, of Nicholasville. By this management I winter many more queens than I could do in any other way that I have practiced. I use a Simplicity hive, only I use a shorter frame, which, if I remember, you at one time called "crosswise Langstroth." JOHN CRAYCRAFT.

Altoona, Orange Co., Fla., Oct. 11, 1886.

Your method of wintering weak colonies is essentially the same as the one we have practiced. See department of Our Own Apiary in back issues.

ALSIKE FOR ENRICHING THE SOIL.

Can any one who reads GLEANINGS tell any thing about the fertilizing qualities of alsike? I have read much about the delicious sweet it produces, but never a word about it in regard to enriching the soil, which is a very important thing. Why can't those who have had experience in the matter just tell us what they know? Don't you see the point? How much more seed would be sold, if we could say that it is as good, if not superior, to any thing else as a fertilizer! As the time for sowing will be upon us soon, we must prepare for it. In so doing we must sow that which will give the best returns for money invested. J. A. RIME.

Fairfield, Adams Co., Pa.

Friend R., I have not known of alsike being plowed under, as we do the large red clovers, for the reason, perhaps, that the seed costs too much to use it in this way; besides, it would not furnish as much material to plow under as the Mammoth red clover, which does not cost nearly as much per bushel. As to its effects in bringing up poor soils, I think it will compare favorably with the rest of the clovers. Perhaps some of our readers have tested it.

HOW TO SELL HONEY; AND A FEW KIND WORDS AS WELL.

The complaint of "no market" for honey is heard here, and will continue to be heard until the producer will gird on his armor and sally forth, determined to sell at the front or back door of every house. We have determined to peddle our honey in St. Louis, and will commence about Wednesday of this week.

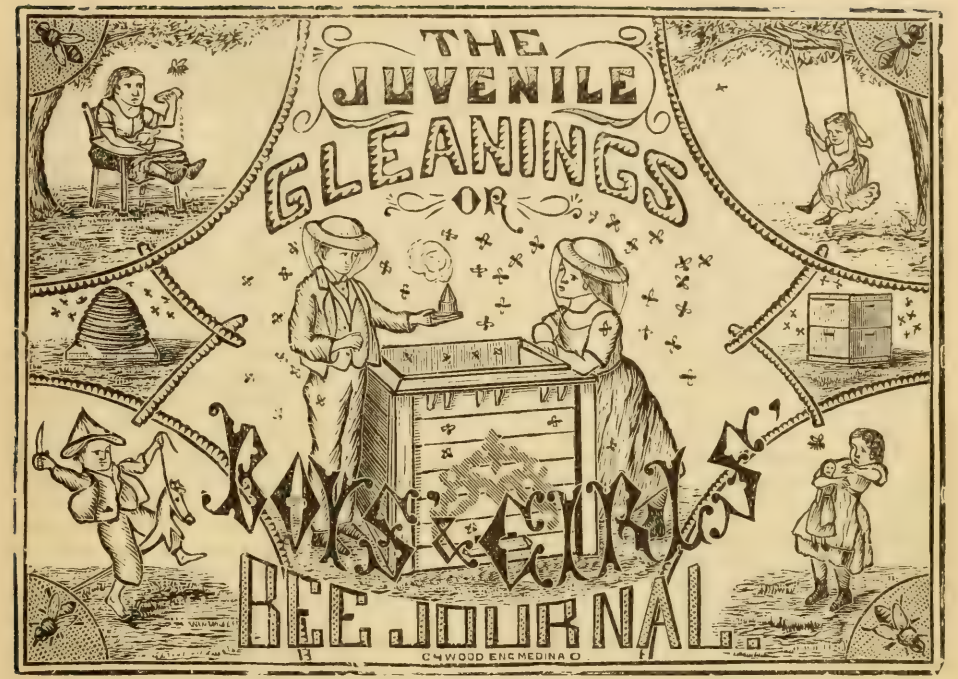
We receive GLEANINGS regularly; and as we read in it we are sensibly drawn to a higher appreciation of the moral solidity of the character of its editor, and of his great work in the fields of Christianity wherever he is known. Moved by a friendly impulse, our purpose is to write just as we would talk, could we be in Medina, and be present with you in the environments of your own home. In writing, the use of "we" does not signify that an editor is writing, but one who, in all the vast concerns of life, has a partner who is always consulted; and in our family it is generally "we," not "I"—only two in our family—wife and I.

Venice, Ill., Oct. 31, 1886. O. D. OBERLIN.

WHY NOT CLIP QUEENS' WINGS?

It does astonish me when any of the bee-keepers speak against clipping queens' wings, as I have practiced it for years, and think it the very axle on which the whole machinery turns—so little trouble to hive swarms, and so quickly done, if her wings are clipped. If not, you never know what to expect, as they invariably settle high in the timber around our yard, and getting them down safely and quickly enough is the next thing. But when the wings are clipped it is an easy task of only a few moments. MRS. A. V. CAMPBELL.

Middleton, Tenn., Oct. 28, 1886.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

When they had dined, Jesus saith to Simon Peter, Simon, son of Jonas, lovest thou me more than these? He saith unto him, Yea, Lord; thou knowest that I love thee. He saith unto him, Feed my lambs.—JOHN 21:15.

ONE day, when I was tired of reading letters, I pushed off as usual down among the celery-plants, to see how the men were getting along. On my way I met my flock of Brahmas that I have told you about so many times. They looked so pretty and so slick that I felt a sudden desire to get one in my hands, that I might stroke the soft plumage, and make friends, in a general way, of these beautiful birds. I found an ear of sweet corn, left after we had gathered the crop for seed, and by a judicious use of it I soon had a fine Brahma prisoner. In a little time I succeeded in getting him to eat corn while I held him, and finally to eat out of my hand, and in just about 20 minutes by my watch I had him so thoroughly tamed that I could set him down and pick him up again. I had convinced him I was a friend and not an enemy, and I felt something of the satisfaction, when I started to go along to my work, that I often feel when I handle a colony of cross bees, without smoke or bee-veil. It seems like fulfilling the promise of Scripture, where God said, "Let man have dominion over them."

When I got back to the factory, a lot of schoolboys were running our lumber-car for play. It was Saturday afternoon, and they were boiling over with spirits, and wanted to do something. They had been repeatedly forbidden to use this car. In fact, the lower end of the track was torn up, and they not only endangered the car, but endangered their bones in using it to ride on. I felt cross to think they disobeyed; but they were so busy with their fun that I walked right up to them before they saw me. In fact, I had ample time to theorize a little before I said any thing. My thoughts ran something like this:

"Old fellow, you have just been boasting to yourself that it took you only twenty minutes to capture and tame a Brahma chicken; now suppose you try your hand at this flock right before you. Can you win *their* confidence, and tame them so they won't run when you speak, in twenty minutes, or even half a day? The chickens are only dumb brutes; but these are human beings, and have immortal souls. Yes, even that boy whose face is so dirty has a soul to be saved, and Christ died for such as he. Furthermore, the parting injunction of the Master, when he left his disciples here upon earth, was, 'Feed my lambs;' and now, then, old fellow, let us see you practice what you preach."

It almost made me tremble to think of the responsibility that rested on my poor self at this moment, especially when I realized how far away I had just been from the straight and narrow path. I began to be thankful that they *did not* see me till I had had time to reflect. Can you tame a boy as easily as you can a chicken? I waited until one of them looked up to me, and then they made a start to run; but by mild words I induced them to wait a little. I spoke to them pleasantly, and explained to them the reason why we could not permit them to have fun with the car; and as I looked into their faces, one after another, I was pleased to see that I had succeeded in bringing a smile to the face of every one. Yes, even the dirty-faced boy smiled too; but it was such a comic smile through the dirt that *I* had to smile in spite of myself. I don't think the boys have bothered the car any since. But the question is, What have they been doing meanwhile? I am obliged to say, I do not know; in fact, I haven't thought of them very much since then, unless once in a while, to wonder what I can do for them. I used an ear of sweet corn to catch the chickens. Is that a good way to catch boys? To a certain extent, I think it is; and I am well aware that I could get a whole dozen of boys any Saturday afternoon—boys brimful of good nature, and ready to do any thing I ask them to do, by the judicious use of a few nickels. Shall I hire them with money to be good boys? God forbid. I can do this, however: I have just purchased a peat-swamp (or a little one, at least), that lies in sight of where I am now writing. It is covered with small underbrush and little trees, and a great amount of gnarly roots. I want these roots and bushes chopped into firewood. Now, I could employ a dozen boys profitably, without much doubt, some Saturday afternoon, in clearing up this swamp. I shall probably need to purchase a dozen cheap hatchets, and, more than all, I shall need to be right with them personally. Although I have many good men in my employ, yet I feel pretty sure that I should succeed much better with the boys than anybody else. They would do more work if I were with them, and I am pretty sure, also, they would enjoy the work more. Now, then, dear reader, are there not Christ's lambs in *your* neighborhood—lambs that are full of restless energy, longing for some one to lead them, and ready, for any thing you know, to be led to Christ Jesus, if you and I can only have faith enough to accept the responsibility, and take hold of the work. May God help us to remember these *little* neighbors of ours!

WILLIE'S COMPOSITION ON THE BEE.

AS READ BEFORE HIS SCHOOL FRIENDS.

THE bee is a peculiar little insect. It feeds upon the honey secreted in the flowers of our roads and fields. It carries its honey to its home and stores it away in its cell to feed the young bees, and also for winter food. When the cell is full of honey they cap it over with a white capping, making it very pleasing to the eye, and delicious to the taste. A good colony consists of about 50,000 bees. A large bee, called the queen, presides over every colony of bees. In the summer time, in every colony are found lots of drones, which is the male bee. In the summer season, when the bees are gathering lots of honey, and the hive becomes crowded with bees, for want of more room they swarm out, making a wonderful uproar in the air; the queen is among the last to leave the hive. After roaring around in the air for awhile they usually settle on some branch or tree, when the good man or boy of the house puts them in a hive, and they are ready for work. The old queen having left the old colony, they now proceed to raise some new queens. About six days after the queens hatch out, we have what is called the second swarm, or after-swarm. In these after-swarms we sometimes find two, three, four, or sometimes a half a dozen young queens. We hive this second swarm as we did the first.

In the fall of the year, when the bees do not gather much honey, they rob other colonies. If the colony is too weak to defend themselves, the robber-bees will take all their honey; and for want of food they usually swarm out. We hive this absconding swarm, as it is called, as we did the first and second swarm. We hive the bees with a box with a lot of holes in it, and a long pole attached to it. We set the hiving-box by the bees, leaning it against the branch or limb which the bees had settled on; then we have a hook, with a long pole attached to it, to shake the bees off of the limb, and they usually settle in the box. After the bees are all in the box, we take them down and put them in a hive, and give them some brood, honey, and some foundation. We have all of our frames made so that they will fit all of our hives.

To prevent bees from swarming is to take an empty hive and lift half of the frames, bees and all, over into the empty hive, and give both colonies some foundation to work on. This is called transferring bees. The old queen having been took away from the old colony, they now proceed to raise some new queens. After the queens are about to hatch out, the man or boy of the house takes all of the queen-cells out but one, and makes a small bee-hive, with about two or three frames in it. He divides this as he did the first, and gives them one of the queen-cells and some brood and honey. After the queen hatches out they go to work. This small bee-hive is used in raising queens, and is called the nucleus hive. A good Italian queen is valued at $1, $2, $3, $4, and up to $6.00.

There are different kinds of bees. The common black, or German brown, the Italian, the Assyrian, the Holy-Land, and the Carniolan bee. The most popular bee is the Italian; the Carniolan is said to be the gentlest bee we have. The Assyrian bee is said to be the crossest—so cross that a boy like me had better keep hands off, if he don't want himself peppered with the venom of its stinger. The queen-bee is now shipped in cages through the mails from the old countries, even from the city of Jerusalem, where our Savior used to be, and brought over here and introduced in our hives.

So, now, young friends, I have told you about the bee. May we learn a lesson from the busy bee, and be always industrious as the working bee, and not as the lazy drone, who is stung and driven out of the hive. WILLIE M. BOLTON, age 11.

Stanley, Putnam Co., O.

Very good, friend Willie; but it seems to me your figures, 50,000, would make a rousing colony. The number laid down in the books is, I believe, about 40,000; but this would probably refer to a swarm in the spring of the year, pretty near swarming time. We have more colonies of bees that would run 20,000 than 40,000 even, in my opinion.

JUVENILE·DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN ON BEES OR OTHER MATTERS, will recive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

> "A chiel's amang ye takin' notes;
> An' faith, he'll prent it."

JIMMY'S TROUBLE IN FEEDING HIS BEES.

"THE bees is swarmin'!" said Jimmy's little brother Ted.

"Guess you're mistaken — wouldn't be no swarms in the middle 'f October," said Jimmy, as he started with a bound toward his four hives, leaving his little brother trudging after.

"Vell, I guess they be," persisted Ted, almost out of breath.

"Ouch! cracky! Ted, you run for the house, or you'll—my! how savage they be!" shouted Jimmy, as he made a great effort to stand his ground. Ted did not obey immediately; but a moment later he set up a roar —such a roar as only a seven-year-old youngster can give when stung. Jimmy, in the meantime, paid no attention to the cries of his brother.

"Oh-um! how that *does* hurt!" said Jimmy, gritting his teeth, as he pulled a sting from under his finger-nail. Bizz-zip! and a bee sent his little dart in his eyelid, and a third on his upper lip. The tears streamed down his cheeks, as the pain coursed through his eye; and to say that he felt like sneezing, and couldn't, does not half express it. Ted continued to roar loud enough to rouse the neighborhood. Perhaps half a dozen bees were now buzzing about Jimmy's head.

"Cracky! I can't stand no more o' this," he thought; and with two or three bounds he dashed into a thick clump of bushes near the fence. When he thought himself secure from his little enemies, he muttered to himself, "It served the little brat right for not minding me as he ought ter, when I told him to run to the house. I'll bet he'll go an' tell ma a lot of stuff, and then I'll ketch it. I wonder"—

"Hello there! what is the trouble?" said neighbor Green, who, hearing the cries of the child, and seeing a peculiar rustle in the bushes, had come to render assistance. Mr. Green is Sam's father, whom our little readers will remember as the one who showed Jimmy how to feed bees.

"W-h-o-t!" said Jimmy, who now ventured forth from his retreat. "Oh! nuthin'; I've been feedin' my bees—that's all."

"Did I not see you running, a moment ago?" said Mr. Green.

"Y-e-s; but I hain't 'fraid of no bees, only"—

"I understand," said Mr. Green. "By the looks of things I should say that the bees are robbing. See there! the cover of one of your hives is off. There is exactly where the trouble is. Evidently, by the way the bees act, that cover has been off all the morning. Cover the hive up immediately, and close the entrance."

Jimmy paid no attention, but commenced fighting the bees, as if that were the most important thing just then. Mr. Green, seeing that it was useless to tell him to do it, now clambered over the ricketty fence and fixed the colony. This done, he motioned Jimmy to stand back a little.

"Now," said he, "you or somebody else left off that cover."

"Why," replied Jimmy, when he had become more calm, "me an' Ted made some syrup last night. Well, one of my hives was weak, an' was black bees; so I thought I'd give 'em lots of feed. I poured the bread-pan clear up full, and before I could stop it the syrup run all over the enameled cloth and the outside of the hive. Well, I says to Ted, 'We'll leave the cover off that 'un, and put 'ton in the morning;' and"—

"You forgot it!" added Mr. Green, with a pleased smile.

"Well, 'twasn't *all* my fault. Ted he forgot it too," said Jimmy, not willing to bear all the blame.

"What did you leave the cover off for?" asked Mr. Green.

"Why, so the bees could crawl over the edge of the hive and lick it up."

"The syrup, I suppose you mean, and not the hive," said Mr. Green, with an amused look.

"Of course," said Jimmy, as if any one ought to know that.

"Now," said Mr. Green, as he was about to go, "I have closed the entrance and shall trust you to open it after a little. Don't forget it, for the bees will be likely to smother if left long."

When Mr. Green had gone, melancholy Jimmy began to brood over his feeding operation.

"Confound the bees!" he thought. "I wish they didn't have to be fed; an' why couldn't they act decent and not be a lot of crazy hogs? I 'most know Sam's pa will tell Sam that I run from the bees. My! I wouldn't have him know it for"—

"Jimmy! Jimmy! you come 'ere right away!" shouted a shrill, angry voice.

Jimmy obeyed very slowly; and when he had entered the house his step-mother began: "And w'at did ye let this child get stung for? Say, now; take that!" and his mother gave him a box on the ear.

This, together with the stings, irritated him, and he angrily replied:

"When I saw how cross the bees wus I told the little brat to go back; so now. He's always botherin' an' taggin' me round all over, an"—

"Not another word," said Jimmy's mother, gesturing with one hand. "I'll tell yer father to lick ye when he comes home, and he'll put an end to your bee-business. Mr. Brown has been for a long time wanting us to get rid of them bees, because he said they spoilt his fruit next to our line fence. No, sir; you needn't think you're going to feed them bees again."

Jimmy's heart was full, and he began to cry. He had hoped that he might make bees a success. So far they had cost nothing except for the little feed he had given them the night before.

The first swarm had alighted on a bush in the back yard, and Jimmy had managed to hive them in an old soap-box. Mr. Green, hearing of this, gave him three or four old cast-away L. hives. These he had not used for some years as he now used and preferred the chaff hive. He had an object in view in helping Jimmy. It was to win the boy to Sunday-school, in spite of the fact that his mother said he had "no good clothes." Poor Jimmy! His step-mother was unlearned, and overworked, and many times cross to her children. She loved Jimmy in her way, but did not and could not tell of the love of the Savior. The father was careless, good-natured, and what some folks call shiftless. A good deal of the time he was out of a job. Jimmy had never been taught of Christ, except now and then a word from Mr. Green, whom Jimmy admired.

The words of his mother he had just heard ruined all his fond hopes of becoming a bee-man like Mr. Green. He thought of how many happy hours he had spent with the bees; he had shown his boy-friends how well he could handle bees, and had boasted of what "piles of honey" he was going to get next year. To give up his bees now, seemed to him cruel.

While Jimmy was mourning thus over in the corner, his step-mother's tongue commenced again:

"I should think you'd be 'shamed of yourself. See how little Ted's eye is swelling, and how red it is."

While Jimmy was being scolded, Ted enjoyed it keenly, which, of course, did not just then make Jimmy feel very affectionate toward his brother.

"Jimmy," she said, at last, more mildly, "you go an' tell ole Aunt Julia to come over 'ere right away."

Jimmy obeyed; but on his way over there he said to himself, "She's nuthin' but an ole maid and an old quack, so she is. I just know she'll bring over all her old bottles. Sam's father said the best thing to do was to let stings alone, after you get the stings out."

As soon as Aunt Julia came over she began to pity Ted.

"Why, you dear little fellow," she said, sympathetically, "how swollen your eye is! how you must suffer!"

This was too much for Ted, and he began to cry as if he were really about to die.

"There, there!" said Aunt Julia; and she began to rub salt water on his eye. She then instructed Jimmy to mix up a little clay and water, and bring it in. He obeyed very reluctantly; and as he was getting it he said to himself, "It's just like her to tell me to mix up a mess of mud. I wish she'd got married."

If there was any class of persons whom Jimmy despised, it was "old maids," particularly Aunt Julia. After a little, Jimmy returned with the mud paste. This, "Auntie" (as she styled herself), much to Jimmy's disgust, plastered over Ted's eye. When she had fixed up Ted she proposed to Jimmy, that, as his eye and lip were swelling badly, he have the same treatment.

"I don't want your ole mud in my eye," stoutly persisted Jimmy.

"Jimmy," said his step-mother sternly, you let Aunt Julia poultice your eye."

Jimmy heroically obeyed, and went through the trying ordeal.

"If you're going to do that to every one of my stings, you'll have to plaster me all over," growled Jimmy, very indignantly.

"Auntie" paid no attention, but said, "There, now, I guess I have done all I can for you."

"Hump!" muttered Jimmy, again, to himself, as the mud trickled down his cheek. "I wonder why she don't dose us with her old medicine. All this kind of doctorin' don't amount to a hill of beans, 'cause Mr. Green said so."

"Jimmy, stop your mutterin'," said his step-mother.

"I didn't say nothin'," replied Jimmy.

"You said sumpin'," said Ted.

Aunt Julia prepared to go, leaving directions to bathe their faces in the morning with borax and water.

Soon after she had gone, Jimmy's father came home. Throwing his hat on the floor in the corner, he said,—

"Hello! what you been doin' with them young ones, Lucinda?" and then he began to laugh.

"I don't see any thing to laugh at," said she rather curtly. "This is all because that youngster over there has been feedin' his bees. He daubed my stove all up; and besides, as a result of his feedin' operations, both of 'em have been stung as you see. Aunt Julia has been over and poulticed their stings."

"I should think so," rejoined her husband, very much amused.

Ted now, to excite pity from his father, began to cry. The queer combination of mud and tears, as it trickled down his cheeks, did not call forth very much pity, but, on the contrary, considerable laughter from his father.

"Don't you remember," he said, after he quieted down, "that neighbor Green told us that all this fussing with stings never amounted to any thing? He said that tinkering, rubbing on salt water, and all that sort of thing only makes things worse."

Jimmy's mother made no reply; but it was quite evident that all her husband had said to the contrary had not altered her opinion one whit.

We will tell you more about Ted and Jimmy next month; but now we must give way for the juvenile letters. ERNEST.

BEES IN TEXAS.

Our bees gather honey from catclaw, mesquite, horsemint, and many other small plants. It is so warm that our bees are left on their summer stands all winter, and they never think of freezing. Papa's bees are mostly Italians. ADA MCPHAIL.

Gallinas, Texas.

THE HEDDON HIVE.

Papa likes the new Heddon hive, but he says your chaff hive would be better for bees so far north. Last year we got 2500 lbs. of extracted honey from 20 colonies. One swarm put in 65 lbs. in three days when basswood was in bloom. This year it was very dry, and pa thinks the frost killed the basswood-blossoms. We did not get much honey this summer. I like to work and go to school.

Mancelona, Mich. ENOIS SPRINGER.

I believe that Mr. Heddon does not claim that his new hive is adapted to outdoor wintering, but that as it is so light it can easily be carried into a cellar or other repository. Its lightness, together with the fact that its frames are fixed, so as not to shuck around, he says makes it comparatively easy to carry it to and from the cellar. For outdoor wintering there is nothing better than the chaff hive, or at least chaff packing of some sort. ERNEST.

HUBER, AND WHAT HE IS DOING.

We have had no cold weather yet this fall, but we are expecting it all the time. How is Huber now? He must be a big boy by this time.

Decorah, Ia., Oct. 30, 1886. ANNA BRICHNER.

Huber is getting to be quite a big fellow now, and he grows so fast that sometimes I think it can't be Huber any more. Lately he has taken a great liking to machinery, and especially to our new big engine. If you were to come here I think he would tell you all about how these big wheels go round. He likes to see the new machinery so well that we have been afraid he might get hurt, and so we have told him that he musn't go near the wheels except when his papa, his big brother Ernest, or his brother-in-law John goes with him. He and the engineer have big times together; and when it is time for our big steam-whistle to blow, if Huber happens to be around, the engineer lets him blow it, and my! he toots so loud that it is an actual fact you can hear him toot all over town. ERNEST.

A GOOD REPORT FROM MINNESOTA.

We had 32 swarms last spring. We have 52 swarms now; they are all nice Italians. We have extracted 250 gallons of honey, and have 600 lbs. of comb honey.

One colony, which did not send out a swarm, filled 42 one-pound sections and three boxes of frames. We never had such nice honey, nor so much. The season has been so dry that honey is so thick it is slow work to dip it. Our bees made much honey from red clover, which we thought extra, but it was not quite so white as from white clover, but very rich and nice.

Ma has made ginger cake of honey, but she likes sugar best. I will give you the recipe:

3 cups of honey; 1 cup of butter; 1 teaspoonful of soda; 1 teaspoonful of cinnamon; 1 tablespoonful of ginger.

I came very near having a swarm of my own this summer. I was feeding my chickens, and I heard a swarm over my head. I ran to call pa, who was putting hay in the barn; and when he got to the yard, expecting to find them settled, ready to hive, they had "gone west." Pa followed them a mile and a half, but they did not alight. LULU BISBEE.

Lyle, Mower Co., Minn., Oct. 15, 1886.

My experience is, that cakes made with honey instead of other sweetening are not as good, though I never saw the day when I didn't like honey-jumbles. ERNEST.

GLADDYS MAUD.

The following little piece of poetry Mabel has just laid on my desk. Who is Mabel? Why, don't you remember when she wrote a letter for GLEANINGS, telling about her papa's bees, about a year ago? Who is her papa? Why, he is Neighbor H., that great big "Uncle Hen," as the children all call him. He it was who furnished us so many and so nice queens for our trade last summer, after foul brood broke out in our own apiary. Who is Gladdys Maud? That blue-eyed little chick over across the way. The lines below describe her exactly, far better than I could if I should try.

COUSIN MABEL'S BABY-SISTER.

I have a little sister.
  Her name is Gladdys Maud;
But papa sometimes calls her
  His little "tiny fraud."

And this darling little sister
  Weighs all of eighteen pounds;
Her eyes are blue as violets,
  And her hair is short and brown.

This precious little girlie
  Is only six months old;
Although her hair's not curly,
  She's worth her weight in gold.

MABEL HARRINGTON, age 8.

There, now; don't you wish *you* had a blue-eyed sister like Gladdys Maud?

ERNEST.

CARNIOLANS THE CROSSEST BEES.

My papa has three kinds of bees—big brown, Italian, and Carniolans. The Carniolans are the crossest bees he has. Papa says that they are probably a cross between the albino and brown Germans; at least, he thinks that they must be hybrids of some sort. Papa thinks that you and Prof. Cook and some other wise men make some grand mistakes, such as bees producing wax by eating honey; bees gathering cotton and other fibrous matter to cap their brood; the queen changing the sex of her eggs at will; froth-bugs and leaf-hoppers, and your idea of a strain of queens that will not fight each other. Papa says he would not give a cent a thousand for such queens. SALLIE MORROW.

Wallaceburg, Ark., Oct. 6, 1886.

It seems to me, friend Sallie, your papa is a little hasty, is he not? Prof. Cook demonstrates pretty thoroughly, by experience and experiment, every thing he puts in print; and I do not think either of us write much from theory, but from actual practice and real work. Now, if your father is studying and experimenting, day after day and year after year, to bring out the truth, we shall be very glad to have an account of his experience.

KIND WORDS FROM OUR CUSTOMERS.

I received GLEANINGS, and am much pleased with it. I don't know how I managed to get along without it so long as I did. It is the best bee-journal published, I think. F. SOMERVILLE.
Monticello, N. Y., Oct. 29, 1886.

The 100 honey-tumblers came to hand in due time, and in perfect condition. I like them better than the glass honey-pails. They are a great deal stronger, and cost less. The freight was $1.10, the same as for 50 honey-pails. JOHN L. BONNAT.
Coulterville, Ill., Oct. 30, 1886.

Inclosed find N. Y. check for GLEANINGS. I have found that the money expended for GLEANINGS has been a profitable investment. I have become very much attached to it, and it can't come "any too often." Your A B C book is one of the finest I have ever seen. C. L. WHITAKER.
Hamilton, Ohio, Oct. 26, 1886.

The celery-plants I got of you are doing so well, and going so far beyond my expectations, that, for want of knowledge to carry them through, I inclose sixteen cents for the little book on the cultivation and winter care of celery. A. A. WEBBER.
Hinckley, Ohio, Oct. 20, 1886.

THE HOME READINGS.

My mother looks for GLEANINGS. She likes the Home readings. She is for ever telling me of what Mr. Root says of this thing and that, as if A. I. Root is always right. Never mind; continue putting your thoughts in print, for it helps others to live.
Shirleyville, Mass. W. E. GRIFFIN.

Inclosed please find one dollar. You may count me as a life subscriber to GLEANINGS. My little nephew, Walter Somerford, of Grimes Co., Tex., came to see me, and he had in his pocket the 15th of March No. of the above journal, and the first article I happened to read was headed "Our Homes." I read first to myself, and then re-read it to my mother, wife, father-in-law, and two little children.
Washington, Tex. JOHN M. DREW.

THE A B C BOOK, AND HOW EVERY THING BY ITS DIRECTIONS WORKS TO PERFECTION.

The goods were received, all in first-class order, for which I thank you very much. I have studied your A B C carefully, and we follow it just as nearly as we can, and every thing works to perfection. My bees are doing finely. From three wintered "skeps" we had eight swarms. Our blacks are somewhat cross to hive, but the Italians are like kittens. I nearly drowned one swarm of blacks before they would give up, but now they are well-to-do people.
MRS. CHAS. MCDONALD.
Centreville, Sullivan Co., N. Y., July 9, 1886.

"NEVER HAVE HANDLED SO PERFECT A LOT OF STUFF."

The goods you sent me were received. Though I have worked a great deal of material in my life, I must say I have never handled so perfect a lot of stuff as that was. Should I need more another season, I shall send you my order. I am glad to know you are selling so much hive-material after your misfortune by the fire. My bees are doing better than ever before. I allowed them to increase from 28 to 56 colonies, mostly by natural swarming. I had one swarm only that went to the woods.
Oriedo, Orange Co., Fla. J. S. WAMBLE.

HOW OUR GOODS TAKE IN CALIFORNIA.

I have been very busy all summer, and have reaped a pretty good harvest of honey—about 3000 lbs. from 40 hives; or, if they had *all* been Simplicity, I think I should have had 1000 lbs. more. Well, so far so good. Those little white sections of yours beat every thing there is on this coast, as you will take notice from a letter in the Reno *Journal*, from the Mechanics' Fair held in San Francisco, in September, 1886. Our honey here is very white and clear, and free from any foreign flavor, and is mostly from alfalfa and white clover. Your Simplicity took the premium at our State Fair, as also did Novice's extractor, and *I* also came in for the premium on honey for the best display of sections, extracted, and the best box, and a recommendation for another premium, so you must think that I feel very much pleased with my honey-crop this season.
Reno, Nevada, Oct. 18, 1886. E. A. MOORE.

THE SIMPLICITY BEE-HIVE; FOUNDATION-MILLS, ETC., AT THE FAIR.

The fair has come and passed. The foundation-machine came just in time (the first day of the fair), and was placed on exhibition, and attracted a great deal of attention, being the first on exhibition in Western Washington. I sold all the A B C books you sent me, and I got the first premium on Simplicity bee-hives. I was successful in carrying off the prize for the best "native honey in the comb." Of course, I had some of my best section honey in competition with comb honey placed on glass, and many were the remarks made in favor of the *new* method over the *old*. I took great pleasure as well as pains, in showing the people the advantages of the Simplicity hives, and the manner of manipulation of the frames, sections, and comb foundation; also I had a second story with honey stored in sections just as they filled them. "And will the bees fill them like that?" was heard a great many times.

This has been a very unfavorable season here for bees to store honey, as there have been scarcely any flowers since the white clover season closed, which was short, on account of dry weather. I transferred all my bees this year into Simplicity hives, except one which I bought in a Simplicity hive, and from it I obtained 65 lbs. of section honey; and from some which I transferred, I got 15 to 20 lbs.; and from the rest (far the greater number) I got nothing, but will have to feed several to keep them from starving before spring. I am well pleased with every thing you sent. My good wife says the Hunter sifter is just capital, and doesn't see how she ever got along without it before. She likes to hear me read the story of Jane Meek & Brother. She says that sounds so much like "woman's rights." T. L. HOLLOWAY.
Chehalis, Wash. Ter., Oct. 9, 1886.

A KIND WORD INDEED.

Dear Friend Root:—I want to talk to you awhile, not for publication, but to yourself, out of appreciation for your good influence in my home through GLEANINGS. I never saw you, but you are a near "heart-acquaintance." I want to tell you, that last July, a year ago, I followed Ernest's and Maud's examples and "swarmed out," and secured, in Southern Kansas, a South-Eastern Ohio girl; and being from near Dayton myself, my queen and I shall claim a relationship with you, anyway. My queen is a devoted Methodist, which will be pleasing to you, and has read the Bible nightly, and led family worship every since we were married. I have been brought back very near, if not right to the foot of the cross through her influence, and I know she won't stop till she is satisfied I am planted firmly on the solid rock of Christ. The good part is to come. On the 2d of Sept., in New Orleans, she gave birth to a fine daughter, which we have named after that great and good woman, Frances Willard, which name is a sufficient exposition of our principles. We feel we have secured a gift from God, and shall try to bring it up in a Christian home. When my wife joins me again I shall take my place at the family altar and do my duty. You have shown us very much in your Home Papers how to draw near to God, how to secure the simpleness of heart so necessary to perfect Christian love. C. M. HIGGINS.
Hahnville, La., Sept. 22, 1886.

[Our readers will notice that the above is not for publication. I have, however, obtained permission from the writer to use the letter as I thought proper; and when I wrote him I earnestly entreatly him to take up the cross and lead in family worship himself in his own home, as he proposes. After the letter was gone I prayed that God might bless my feeble words. I am happy to tell you he has just written me of his complete surrender, and of the establishment of the family altar.]

OUR HOMES.

Let nothing be done through strife or vain-glory; but in lowliness of mind let each esteem other better than themselves.—PHIL. 2:3.

FOR some time I have been considering this matter of awards at our fairs and honey-shows; and I have been pained repeatedly to hear of hard feelings because of the way in which awards have been made. I have, at different times, been one of the judges at fairs, and also have been several times exhibitor. I have been awarded the first premium, and at different times the second premium; and I believe I have also made exhibits when I received no premium at all. As our fairs and expositions are, without question, a wonderful means of educating the people, it seems extremely desirable that we should try to get over or do away with any thing that hinders their usefulness. The Centennial Exposition tried to meet the matter by awarding no first premiums to anybody—simply giving awards to every thing meritorious. It did not seem to answer the purpose, however, if I am correct; and I do not know of any better way than to give first and second premiums, as most of our fairs now manage it. How, then, shall we avoid hard feelings, and the fierce jealousies that now and then spring up and make those who have been good friends estranged, sometimes, may be, for life? The following letter states the case so thoroughly I give it here entire, omitting names and addresses:

A. I. Root, Medina, O.:

Dear Sir:—I wish your decision as to the following: *Mr. A* exhibits one wax-extractor, one bee-veil, one bee-feeder, one queen-nursery, one hook to lift frames, and one honey-knife—6 articles, and he is awarded the first premium, or $10.00, for the *largest* and *best* display of apiarian implements. Mr. B exhibits one swarming and transferring box; one queen and drone catcher (Alley's); 7 bee-brushes; one bee-smoker; one hive-ventilator; one bee-feeder; 80 bee-hives in flat; 60 zinc honey-boards; one tool to make wire hooks in frames; one tool to put fdn. in frames; tweezers to catch queen and bees for caging; one wire-nippers; hammers, all sizes; tacks and nails; brace and bits for boring frames; screws and screw-driver; the A B C book, GLEANINGS and *A. B. J.*, and yet he received the second premium, or $5.00. Mr. A told the examining committee privately that the tools put in by Mr. B were not apiarian tools, as I learned from the superintendent afterward, and the superintendent told the committee he thought they were deciding wrong. Mr. A first (after protest was made) agreed to leave it to you to decide, but later he backed out as to that, and would do nothing but hold all he had got by the award. Is Mr. B warranted in letting Mr. A severely alone in the future, for his grasping selfishness in claiming what he is so unjustly entitled to? At the examination of bees for award on best colony, Mr. B told the committee he conceded the first to Mr. A, and extpeced the same courtesy in return on tools, as it was so apparent. J. L. D.

Probably many of our readers will recall to mind having had experiences quite similar to the above, especially if they are the class of people who attend fairs, and make exhibits. A and B are both good men—at least, so I take it. The judges and superintendent are good men; in fact, I think that bad men seldom get into such places; that is, the judges are usually selected from those whose general tenor of life indicates that they wish to be fair and honest, and, as a rule, free from prejudice or partiality. When I say that A and B are good men, I recognize that they are human, like you and me, and are liable at any moment to be tempted by the evil one, so that their ordinarily good judgment and keen perception may be impaired. I think I told you, years ago, that I decided, even before I became a Christian, it was wrong for *me* to play checkers, because I was sure to become too much excited by the game to feel charitable or kind toward my opponent. It used to be the same with me when I went to spelling-school, when we were allowed to "go up" in the class. Well, our county and State fairs are very apt to encourage this feeling of rivalry and jealousy—a good deal more so than checkers and spelling-schools, because our *money* is involved, and frequently, also, our opportunities for increasing our business. Shall we, then, stay away? If there were not enough good at our fairs to overbalance the evil, I would say, stay away; as it is, I think it our duty to go. But when we go, let us learn to be *men* and *women*, and cultivate the spirit of the little text I have placed at the head of our chapter. Notice, dear reader, the wonderful beauty of the words of that kind-hearted veteran, Paul. One recognizes at a glance that Paul had his conflicts, and knew how it was himself. "Let nothing be done through strife or vain-glory." One is almost tempted to think that Paul had in his mind the matter we have been discussing, when he uttered the words. And, again, "But in lowliness of mind let each esteem other better than themselves." How completely these words meet the case in question! and did we but heed them and obey them, how fully should we be delivered from all strife and unpleasantness!

Our good friend A without a doubt felt a little spiteful toward B because B had brought out a larger and finer exhibit. Now please have charity for friend A, dear friends, and don't be too severe on others like him, who are now and then tempted to do things they would never think of unless under the pressure of something a little unusual. I can imagine A looking over at his neighbor, and catching a glimpse of those tweezers to catch queens with; also the show of hammers of different sizes. Poor A! Satan suggests to him, "Look here, old fellow: If you had brought hammers and nails, screw-drivers, and all the pincers and nippers there were about the house, you might have made a big display also. Now, I think it is your duty to quietly suggest to the examining committee, that, although these things are very fine, they are not, all of them, implements for bee culture." Why, don't you see, dear friends, the matter could be put in such a way as to make it appear that B had pretty good grounds for his suggestion to the judges? The judges, not being very well posted in regard to bee-implements, may have concluded there was reason and justice in the suggestion. Their proper way would have been, however, to interview B, and ask him if he considered hammers and screw-drivers, strictly speaking, implements for bee culture; then each party could have defended his position. Of course, the judges would have to decide one way or the other, eventually, for the question is like thousands of others that come up —one that can not be settled definitely, but must remain, for all time to come, matters of opinion, and on which good people may honestly differ. The superintendent, desiring to be fair about the matter, tells friend B why his larger exhibit was given only the second premium. At this, friend B is terribly stirred up. I feel exceedingly grateful to him for the compliment that he pays me in suggesting that *I* should decide the matter; but I hope he will not feel hard toward me when I say there is no way of deciding it, that I know of, that will begin to compare with the one suggested by our text. I should say, "Now, good friend B, as the decision has been given by the judges, by all means drop the matter and let it rest there. May be you can not help feeling hard a little; but, dear friend, please try to think that what is your loss is your neighbor's gain, and that it does not matter very much after all who has the money or who has the honor and the glory in this world. Make up your mind to be manly and liberal about it, no matter if it does look unfair and underhanded. A is your neighbor; and if he has shown a greedy and selfish disposition, try to feel truly and really sorry for him, just as you would if he were your own flesh-and-blood brother. By *no manner of means* think of letting him 'severely alone,' as you term it. He is not a bad man; in fact, I think I am right in thinking you have always heretofore held him in high esteem. Hold him in high esteem *still*, dear brother; pass it by, and let it go. 'Let this mind be in you which was also in Christ Jesus;' 'but he made himself of no reputation, and took upon him the form of a servant, and was made in the likeness of men: and being in fashion as a man, humbled himself, and became obedient unto death, even the death of the cross.'" I have been through these trials, dear brother. I have cherished unkind and ungenerous feelings toward the one who took the premium from me; and I have again, on the other hand, said to myself, when I felt the promptings of the tempter, "Get thee behind me, Satan."

I have oftentimes of late been tempted to think uncharitableness the most comprehensive and most common sin to be found in the world. If we cherish unkind and uncharitable thoughts toward a fellow-being, nobody knows what the end may be. If these thoughts are not put away and stilled, they may result even in murder; and who shall fathom the agony and remorse one who has committed such a crime is compelled to carry through life? I do not know what this awful remorse is; but I do know of the wonderful and untold blessings that flow into the heart, and, I think I may say truly, into the *purse*, of him who tries to obey the command of our little text. I remember the time when there was a little strife in our town, about who should have a certain kind of work. I do not like to be beaten in *any* thing; and before I knew it, I was planning to get the work away from my competitors. Thank God, however, the influence of Christ's spirit began to strive with me; and finally I told the one who had it in his power to let out the work, I would rather he would give it to the other parties. He seemed a little surprised until I explained to him that they, perhaps, needed the work more than I did; and as there had been some feeling in the matter already, I would let go what advantage I might derive in getting it myself, and finally told him I should feel happy in letting them have it, and I did not tell an untruth, dear friends. There came a feeling into my heart right away, that the little sacrifice I had made was laying up treasures in heaven, if not here on earth. I have experienced this feeling many times, after triumphing over selfish feelings and jealousy; and, strange to tell, it seems as if I had not lost any money by it either. A great many times it is a hard matter for judges to decide in regard to the comparative merits of exhibits; and, again, they sometimes look at it somewhat in this way:

One man of considerable wealth and means makes a large exhibit; in fact, he excels in almost every thing. Another competitor, however, a man of limited means, has a small exhibit, but has every thing very nice. He has certainly done wonderfully well for one with so few advantages and with so little means. Shall *all* the premiums be given to the man who has so much? This, too, may be a question that all would not agree on. One of the judges may say, "It is our duty to make the awards without regard to the condition or circumstances of the competitors; in fact, we ought to make them as if we did not know the parties at all." Another might say, "But *I* think, friends, that it does make a difference who the man is. The one who has accomplished a great deal with very small capital and advantages ought to be rewarded." A third one may say, "I tell you, my friends, what *I* think about it. I do not believe it is a good thing to give all the best premiums to one man. The premiums are offered with the view of encouraging agricultural industry, and let us divide them around a little, giving each one something, to encourage him for the time and trouble and pains he has taken." I might go on and give other similar examples; but all I wish to show is, that the judges may be good men, and actuated by the best of motives in making awards that sometimes seem to us singular and uncalled for. Now, is it not a great deal better to try hard to take a charitable view of all these things? Search diligently for good motives instead of evil ones, when you feel like criticising. To come back to our text, "In lowliness of mind let each esteem other better than themselves." You do not believe *you* are actuated by narrow and selfish motives; then be generous enough to think at once that others are like yourself.

It cramps and warps and deforms a man to get into the habit of thinking everybody unscrupulous and unprincipled and greedy. Try to be liberal-minded; try to be whole-hearted; try to be generous; don't stop and pick and quibble about little things. Let it pass—let it pass, thinking that what is your loss is another's gain, and that, may be, it will do him more good than it would you.

And now a word in regard to that part of the letter which suggests letting the individual severely alone. My friend, this "letting alone" very often amounts to striking him a blow. I do not see how a Christian can possibly be excused for so doing, for the Master says, "Love ye your enemies; do good to those that hate you." Now, you can not do good to a man by letting him "severely alone." It may not always be best to speak to him, or to have very much to do with him under certain circumstances; but it is the duty of a Christian to be always striving to do good wherever an opportunity offers; and the letting-alone principle generally includes refusing to do him a kindness when opportunity offers. Now, if we are going to do good to our enemies as well as to our friends, we come pretty near promising to do good to everybody, irrespective of what has heretofore happened. If you have never tried it, suppose you surprise some one by doing some little friendly act for him, even after you two have had difficulties. Surprise him by letting him see that you have concluded not to treasure up or remember it against him. My friends, we have not time to indulge in hard feelings toward *anybody.* Some of the best lessons in this line I ever got in my life were from our good friend Prof. Cook. The good lessons were not in the way of advice, but they were in the way of actual experience and transactions. Sometimes I wonder how it is, and what is the secret of the great hold he has on the hearts of the people—not only the people of Michigan, but people everywhere he is known, either through personal acquaintance or through his writings. I think I have found the secret. What do you suppose it is? Why, it is embodied in the little text at the head of this talk, better than any words I can frame to tell it. The way is open for you to go and do likewise. There is no patent right on loving your enemies, and doing good to those who hate you. There is no patent right against putting away strife and selfishness. Christ's teachings are free to all. The saddest part of it is, that so few are found to take advantage of them, thus making not only this world pleasant, but laying up treasures in heaven by means of these same teachings.

It seems to me that Satan sometimes warps our better judgment in these matters by persuading us that it is our duty to bring the guilty to justice; and the evil one may even persuade some usually well-meaning man that he is doing God service in prolonging a useless quarrel and controversy. There are many texts in the Bible, commanding us to give way and to suffer wrong, and to judge not; but there are very, very few enjoining us to expose a brother, and bring his iniquity to light, even when he is doing wrong. Would it not seem, in view of this, that the tendency of humanity is much oftener toward the one extreme than to the other?—that is, difficulties among friends and neighbors are very rarely of such a character as to demand lawsuits or public exposure. Even in this great trouble that is before our people now about the intemperance of our land, I believe we often err in being in too great haste to condemn too severely. No doubt, something ought to be done in all these cases; but the question seems to be, What is the wisest thing to do? If we stop and ask ourselves what course will do the friend in question most good, we shall seldom be led astray.

A few days ago, one of the book-keepers submitted a letter to me that she had written to a man who had behaved very badly. I told her it was too severe.

"But, Mr. Root, it is the exact truth," said she.

"I know it is, but I would not tell the exact truth." She looked at me a little inquiringly.

Now, friends if the erring one were one of your own family, and you were telling what he had done that was wrong, would you tell the whole truth? I think not. You would soften it and omit unnecessary details, and I think you would be doing right. Evil is bad enough without exaggerating it and giving the full details as the sensational newspapers do. Well, now, if you will soften it and put it mildly because the offender is a relation, why not consider all mankind related to you through God the Father, and appeal to his better feelings, if possible, by stating his offense so mildly that he will recognize you do not put it as bad as it is. It is a very hard thing to do this when you are excited and stirred up; but I tell you, my friends, it is a wonderful thing to be able to control your feelings so as to hold back even *truths* which it would be better not to utter, or that are not necessary to be told. A good friend of mine once suggested to me that I should remonstrate with one who was acting very provokingly. I replied that I had decided to do so a dozen times, but that, when I began to consider the matter, I felt that I should say too much, and so I said nothing. The reply was, "I think, Mr. Root, if you only had grace to do it, it would come better from you than from anybody else."

I have often thought of that word "grace" —the grace to reprove, and yet do it mildly, kindly, and lovingly. How beautiful and lovable is this trait when we see it in others! May God give us that coveted grace, even though it seems as if we have not inherited it by nature; and may he help us, that nothing be done through strife or vain-glory. May his Spirit sustain us and help us, in lowliness of mind to esteem others better than ourselves.

Now, a word more, in regard to this matter of not telling the whole truth when you are discussing some trouble with an opponent. Both of you are excited, and greatly disposed, when speaking to each other, to state it a little stronger than the real facts in the case will warrant. Recognizing this, be sure that all of your statements are a little below the mark, as it seems to you. Your opponent is watching keenly for any evidence of insincerity or untruthfulness on your part. He may be a bad man himself, and therefore he is hoping to find you are equally bad, and is ready, at the smallest excuse or provocation, to call you untruthful. Be guarded and wary. Surprise and disarm your opponent by statements so mild that he will be forced to say in his heart, "Well, I declare! the fellow is fair, even if he is right against me in this matter." He may have been ready to call you a *liar* the minute he catches hold of the very smallest exaggerated statement. Make every point and every complaint of his conduct a good way inside of the line of truth, and then you are on the safe side, anyway. We unconsciously measure each other, and just bear in mind with what respect and reverence you look up to a man whom everybody knows is mild and fair, and within the bounds of truth in all his statements. Don't let the heat of controversy, or any temptations in the way of selfishness, lead you to overstate. Be kind, even to the unthankful. The power and influence and weight of a man who is universally known to be kind and fair, even when he has been misused, is wonderful; and even bad and wicked men look up to him with reverence and respect. Shall we not strive for such a reputation among men?

Our Own Apiary.

CONDUCTED BY ERNEST R. ROOT.

FEEDING, AND THE BEST FEEDERS FOR BUSINESS.

In talking now upon feeders and their relative merits, I hope I may not be understood as saying that the feeders which I shall recommend are the best, but, in my opinion, are the best we have *tried*, for reasons which I shall presently give.

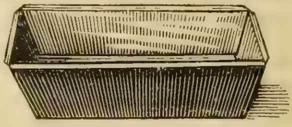
I believe that, in answer to a correspondent recently, I stated that we used and preferred the bread-pan feeder. So we did at that time; but a combination of circumstances has reversed my opinion. It occurred something in this way: About the time we were placing bread-pan feeders upon the hives, preparatory to feeding, our supply of feeders gave out.

"Can't you find any more bread-pans?" said I to the apiarist.

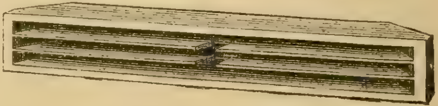
"No," he replied; "but there are some old trough Simplicity feeders in the second story of the house-apiary; but, one of those won't hold enough for feeding up quick."

"Well," said I, "if there are enough we will give each colony three, which number, I think, will hold about the same quantity of syrup as one of the bread-pans."

We managed to scrape together about a hundred. To every colony that still lacked a bread-pan we gave three of these Simplicity feeders, placing them on top of the enameled cloth, the latter being turned back so as to allow the bees to come up and "drink." The bread-pans, with a piece of cheese-cloth, were laid upon the enameled cloth in the same manner, there being only one to each hive. The feeders were filled at night, as I have before explained in the previous number. We had not continued our feeding more than a day or so before our preference was decidedly in favor of the Simplicity feeders, for these reasons :


BREAD-PAN FEEDER.

The cheese-cloths in the bread-pans, after they are empty, in the majority of cases stick to the bottom of the pans, and it is no little task to pull them up; 2. The cloths have always to be pulled away before filling, which takes time; 3. The sides of the pan being made of tin, and sloping at that, makes it no easy matter for the bees to get at the feed; 4. If the cloth is not laid over the pan of syrup very carefully, a good many bees are apt to get drowned; 5. In cool weather the bees will scarcely ever take feed from them—from the fact, I suppose, that the metal is cold to their feet. None of these objections can be named against the Simplicity feeder. With the latter it is only necessary to raise the cover and pour in the syrup—no cheese-cloth nor any thing of the sort to fuss with. If the three feeders are full of bees it is of no consequence; pour the feed in just the same. The bees that are immersed in the syrup will crawl up the partitions in the feeders, as it were, and none will be drowned—at least, I have never seen any dead bees in the Simplicity feeders, and I have tried to so besmear the bees with syrup as to drown them. Perhaps some of our A B C scholars would like to see a cut of the Simplicity feeder, showing the partitions, which prevent the bees from drowning.


SIMPLICITY FEEDER.

It is simply a wooden trough; and the fact that it is made of wood, constitutes one of its chief points of excellence. The wood is a non-conductor of heat and cold, and during cool weather is not so apt to repel the bees. Its wooden surface also renders it an easy matter for the bees to gain access to the feed, and the rough sides of the partitions, as left by the wabbling-saw, serve as an excellent foothold to the bees in climbing, even when besmeared with syrup. A bee that can't climb up these partitions is no bee at all, and ought to drown.

The fact that the Simplicity requires no floats or cloths to be lifted out and replaced, makes it possible to feed up a lot of colonies in nearly half the time that the bread-pan feeder requires. It not only takes less time to fill the feeders with syrup, but the bees will in every instance show their preference by emptying the Simplicity first. In perhaps a score of hives, we placed, on top of the enameled cloth of each, three Simplicities and one bread-pan. In every instance the wooden feeders were emptied long before bread-pans. If any of my readers are skeptical, let them try the same experiments and note the difference. I think your verdict will be that you will want no feeders except those made of wood.

Some one says, "The Simplicity is too small." It is just right for stimulating brood-rearing. When it is desirable to feed, say 10 lbs. of syrup at a time, I place ten of the Simplicities right on top of the frames, side by side, leaving a bee-space between each feeder. Over this I place a couple of Hill devices, and lay the enameled cloth over the whole. But it is not often that we need to feed that quantity at one time. That the bread-pan is a good feeder, and will do good work, I do not deny; but I only claim that the wooden feeder is much superior.

FEEDING IN COOL OR FROSTY WEATHER.

While we were feeding, a cool spell of weather with frosty nights came upon us, and the bees seemed loath to take down the feed as usual. As they had not then quite sufficient stores for winter, I did not wish to have our feeding prevented because of a little cool weather. It occurred to me, that if we should put the feeders directly upon the frames and cover with a chaff cushion, the feed would be stored in the combs as before. As the Hill device would have to come into requisition soon, it would be just the thing to keep the cushion from sagging into the syrup or prevent it from so covering the feeders as to exclude the bees from the feed. We accordingly put chaff cushions on all the hives, and arranged the feeders as I have indicated; i. e., with a Hill device spanning the feeder, a sheet of burlap covering the whole, and, last of all, the chaff cushion to keep in the warmth. The effect was all I could desire, and the bees carried down the feed as in warm weather. If the weather was too cold they would empty only the Simplicity feeders, and the bread-pans remained untouched. In view of these facts I do not think we bee-keepers want any feeders made of metal, but of wood, and of the simplest construction.

MAKING SUGAR SYRUP BY STEAM.

We have worked up six or seven barrels of granulated sugar into syrup for winter stores, by the use of steam. Perhaps some of our readers might be interested as to our manner of making it. A barrel of sugar is taken down into the "wax-room," as we call it, and unheaded at a convenient distance from a large extractor-can. In this the syrup is made. The can is mounted on a box of the proper height, both for convenience in working as well as for drawing off the syrup from the honey-gate into a suitable receptacle. Closely adjoining is a steam-pipe to which is attached a rubber hose, the latter reaching into the extractor-can; at the left of the steam-pipe is a water-pipe. With a long wooden paddle and a tin pail, every thing is in readiness for making the syrup.

Our proportion of water to sugar for mixing is a gallon of the former to 25 lbs. of the latter. If the syrup is to be made on a stove, our proportion is a gallon of water to 20 lbs. of sugar. When heating the syrup by steam we have to allow a little for the condensation of steam. To get the proportions right, we first weigh a pail of sugar, and then after that simply measure the sugar by the pailful. Now, we do not mix the sugar and water all at once, and then apply steam, but we put just enough water in our extractor-can so that, when the proportional amount of sugar has been added by degrees, the can will be full of syrup. By the application of a little arithmetic we can determine how much water to put in the can so as to come out right. We will suppose, then, that we have poured in the requisite quantity of water. Turn on the steam and let the water snap until about the boiling-point; then scoop up a pailful of sugar, and with one hand, pour it on the hot water gradually, and with the other one stir with the paddle I have mentioned. Continue stirring until the sugar is all dissolved, and the syrup looks transparent. In like manner pour in the second pailful, stirring as before, and so on until the proportional numbers of pailsful are exhausted. If your calculations have been right, and you have followed directions, your can will be full of beautiful clear syrup. There ought not then to be any granulation, though there may form a little scum on the surface of the syrup. The bee-feed is now hot, and will have to remain eight or ten hours to be cool enough to feed.

You will perceive that there is not a particle of danger of burning the syrup when heated by steam; and after the sugar is in we generally let it boil for 10 or 15 minutes, to make sure that it is all dissolved. While stirring, occasionally run the paddle through the gutter that leads to the honey-gate, for oftentimes it may become clogged.

Now, perhaps some of our readers may think that, in making syrup, we go through a good many unnecessary operations. Possibly we do; at any rate, for the last four or five years this is the syrup that we have fed to the bees, and our success in wintering during this time has been good, as our readers are aware. Whether the syrup has any of the credit, I would not say; but I believe it has been one of the important factors.

HOW TO GET RID OF LIFE-INSURANCE AGENTS, OR ANY OTHER KIND OF AGENTS.

One warm day, after the colonies had all been fed up, I was engaged in packing the colonies in chaff. Wishing to take advantage of the warm weather as long as it lasted, I was desirous of getting all the colonies packed before the cold set in, and consequently was quite busy. While I was thus occupied I saw a familiar form advance toward me through the aisles of the apiary. Yes, it was the life-insurance agent. As I am a young married man, he was very desirous that I should take a policy in his company. While he was explaining the "semi-tontine" plan and its advantages, and was about to press his argument, I saw that I was being hindered. A bright thought struck me. Was I going to take out a policy? "Oh, no!" I said to myself. "Here is a hybrid colony; I will accidentally (?) bump the hive. I can easily stand a couple of stings."

While this thought was passing my mind, and I was about to execute my plan, I am sure I looked pleased. My companion, thinking that I was about to tell him I would take out a policy, advanced nearer to me—just what I wanted.

"My! these bees are cross fellows," said I.

My companion took the hint; and as he started off on a kind of dog-trot (he weighs 200) he said, "Good-evening; will see you at another time."

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, NOV. 15, 1886.

Do all things without murmurings and disputings.—PHIL. 2:14.

WE will give 15 c. each for May, 1875, GLEANINGS.

ERRATUM.

IN the last column on page 900, in this issue, the reference should have been to GLEANINGS for 1885, and not to the "Winter Care of Horses and Cattle."

FRIEND HUTCHINSON'S LOSS BY FIRE.

THE following is from friend W. Z. H. by postal:

> We have lost nearly 1000 lbs. of our choicest comb honey, by the burning, last night, of our railroad depot, where the honey was stored preparatory to shipping. The postoffice, hotel, and a store were also burned. W. Z. HUTCHINSON.
>
> Oct. 26, 1886.

THE BUSY BEE.

FROM Rev. E. T. Abbott, St. Joseph, Mo., we have received a little work on bees, entitled, "The Busy Bee; or, Bee-Keeping in a Nut-shell." It is in pamphlet form, and contains 40 pages of matter, of which something over half is devoted to bees, and the rest to advertising. It can be obtained from the address above. Price 15 cts.

DISCOUNTS FOR THE MONTH OF DECEMBER.

UNTIL Dec. 1 we will allow 8 per cent discount on all goods which, from their nature, can not well be used until next season, as given in our last issue. During the month of December the discount will be reduced to 5 per cent; in January it will be 4 per cent; in February, 3 per cent, and in March 2 per cent. After April 1, net cash as usual.

COMB HONEY IN GLASSED SECTIONS, AT ONLY 10½ CTS. PER LB.

IN order to close out the lot mentioned on page 329, April 15, we will sell it in lots of 10 cases at 10½ cts. per lb.; less than 10 cases, 11 cts. per lb. This is nice honey, and can hardly fail to give satisfaction. The only objection to it, that we know of, is, there is a sheet of glass fastened on each side of a section, and, of course, this glass is weighed up with the honey. See description on page referred to above.

LETTUCE IN THE OPEN AIR, IN THE MIDDLE OF NOVEMBER.

WE have this morning pushed away the snow from off the heads of Tennis Ball and "Deacon" lettuce, and gathered a basketful of about as fine heads as any we ever saw, although not quite so large in size as those raised in summer. I hardly need add, that it was grown over the New Agriculture. The mercury has been several times down to 20 degrees—12 below freezing—but it does not seem to hurt it a particle. Before it gets much colder we shall cover it with sash or oiled cotton cloth, nights, or when it freezes severely during the day time. We are going to have a fine lot of it ready for Thanksgiving. The "Deacon" is a new variety that promises to be an acquisition. The leaves are smooth, flat, and round. It is an enormous grower, and the heads are very handsome.

REPORT OF THE PROCEEDINGS OF THE INDIANAPOLIS CONVENTION.

THE above report is very neatly gotten up. It is a book closely written, of 32 pages. It is furnished by the *American Bee Journal* for 25 cts. It seems to me the matter contained in it ought to be worth that to any enthusiastic bee-keeper. While I am about it, I believe I omitted to make editorial mention of the proceedings a year ago. I regret this, as it embodied also a history of the N. A. B. K. S. from 1870 to 1884. The price is also 25 cts., furnished by the *A. B. J.* This latter book contains 64 pages. While we are looking over these convention reports, I feel moved to say that the editor of the *A. B. J.* should receive a vote of thanks for the very faithful service he has rendered at different times to this convention, or, so far as I know, at *all* conventions. He is a most excellent reader and speaker, full of good-natured pleasantry and enthusiasm; and with the experience of the last two or three conventions before me, I for one should feel sorry to find friend Newman absent from any convention I might have the good fortune to be permitted to attend.

A GOOD TELESCOPE FOR A SMALL AMOUNT OF MONEY.

WHEN I was a boy I was greatly taken up with a description of a home-made telescope, described by the great astronomer Thomas Dick. The glasses were good, but the tubes were made of pasteboard formed by rolling up old newspapers. They can be made so as to slide one into the other, and answer every purpose of the expensive brass tubes, only when you draw the instrument out the tubes may come clear out and pull apart if you are not careful. Well, we have just succeeded in getting a lot of telescopes made in this way. The power is pretty nearly equal to our $2.00 brass telescopes, but the price is only 50 cts. Or we will send it for 2 new names or 4 renewals. They can be sent safely by mail for 6 cts. extra. When drawn out the instrument is 36 inches long; but it shuts up to 11½ inches. The paper tubes are nicely finished and varnished, and the ends are capped with brass, so the instrument is not bad looking after all. We are so confident that these will please the juveniles who have a love for telescopes and astronomy that we will take any one back that does not give satisfaction—you, of course, paying postage both ways. They are made to be used as a marine telescope. We hope to have a picture of the instrument in our next issue.

AN AGENT FOR GLEANINGS AT EVERY POSTOFFICE.

A FEW weeks ago I suggested that somebody at every postoffice take the matter in hand, of visiting all the bee-keepers, with a view of getting them to subscribe to GLEANINGS, and that that person should have 25 cts. for each name he sent in *from his own* postoffice. The question arises, Shall the one who acts as agent for GLEANINGS receive 25 cts. for sending in his *own* name? To be sure, he may; but before giving him this wholesale rate, we wish him to call on all the bee-keepers near him, as mentioned above. If he does not succeed in getting *even one name*, he may still have GLEANINGS for 75 cts., providing he sends us the names of those upon whom he has called. We want these names to make up our list of those to whom we send price lists once or twice a year. Now, we hope there will be no rivalry in this matter. Let the bee-keepers at each postoffice decide upon some one among their number to receive subscriptions. As I said before, the supply-dealer of the neighborhood would be the proper party, generally speaking. I do not know how we can permit you to take names from other postoffices than your own. This would virtually amount to cutting down the price of GLEANINGS, and I think it better that each agent should get a full dollar from each subscriber. Be sure you state, when you send in names to take advantage of this, that *you* are to be agent at your postoffice.

A BARGAIN IN WATCHES; ALSO, HOW TO GET A WATCH FREE.

WE are now selling our 23d gross of Waterbury watches. The latest style is series E, which we send postpaid and registered for $2.75. We have on hand a few of the old styles, which are as good timers as the late styles. We should like to close out these old styles, and, in order to do so, we make the following low prices on these watches, regulated and tested to run in the pocket:

Series C, postpaid,............................ .. $2 50
" B " 2.00
" A " 1.50

Who ever heard of a watch that would keep good time, for such an insignificant sum? and if you haven't the money to send, I'll tell you another way to get them:

To the person sending 5 new subscriptions to GLEANINGS, at $1.00 each, we will send a new "Series E" watch, postpaid, free; for 4 new subscriptions, a "Series C" watch; for 3 new subscriptions and one renewal, a "Series B" watch; and for 2 new subscriptions, and 2 renewals, a "Series A" watch. Where is the girl or boy who can not, with a little effort, induce his bee-keeping neighbors to take GLEANINGS, and thus get a watch free? As our supply of these old watches is limited, you will have to go to work at once, or they are likely to be all gone.

CONVENTION NOTICES.

Nebraska bee-keepers will meet for their next annual session in Lincoln, Neb., on the second Wednesday in Jan., 1887.
H. N. PATTERSON, Sec.

THE MICHIGAN STATE BEE-KEEPERS' ASSOCIATION.

The executive committee for the above association are at work getting every thing ready for their next annual meeting, Dec. 1 and 2, 1886. A large and varied programme is being prepared. Several excellent papers have been promised. The meeting will be in Grange Hall, in Union Block, with headquarters at the Hawking House, where reduced rates have been secured. Ypsilanti offers many attractions to its visitors, and it is expected this will be one of the largest and best meetings ever held by this association. A cordial invitation is extended to all
H. D. CUTTING, Sec.

GOODS NEAR YOUR HOME, AT A REDUCTION FROM REGULAR PRICE.

We have the following lot of goods at the places named, for which we want customers. Now, it is altogether likely that there is some one located not very far from where these goods are who will be needing just such articles, especially if he can get them a little lower than the regular price, and doesn't have to pay much freight charges on them. In hopes that there are such persons, we append a list of the articles for sale, giving the present value of the goods and the amount we will take for each lot entire. We give a number to each lot, and the name of the place where they are being held, subject to our order. Remember they are all perfect goods, just as fresh and new as if shipped from here. Remember, also, that at the price we offer them we can not break lots; each lot must go entire. In making your orders, please give the number of the lot as well as the articles contained in it, and thus help us to avoid mistakes.

No. 1. Aplington, Iowa.
Ten 2-story portico hives, complete, in flat, for comb honey, including m. c. frames, wide frames, sections, separators, thin fdn. for sec., 7 lbs. brood fdn., and enamel sheets. The lot foots up to $25.30. We will sell it complete for.................................$22.00

No. 2. Union City, Ind.
13 combined shipping and honey crates flat; 90 tin separators for above crates; 26 pieces glass for above crates; 40 metal-cornered brood-frames in flat. Present value, $4.50; will sell for................ 4.00

No. 7. Nassau, N. Y.
200 wide frames, for 8 1-lb. sections, in flat. Worth $4.00; will sell for...... .... 3.75

No. 8. Riverside, N. J.
500 1-lb. 7-to-foot sections. Worth $2 00; will sell for.. 1.75

No. 9. North Walton, N. Y.
100 metal-cornered frames, in flat. Present value, $2.50; will sell for....... .... 2 50

No. 12 Caribou, Maine.
900 sections, 4½ x 5 x 1 7 16 wide, open on all four sides. Present value, $4.50; will sell for............ .. 3.50

No. 14. Delaware, Ohio.
35 bottom-boards for Simp. hives; 210 tin separators for combined crates. Present value, $8 75; will sell for............ .. .. 7.50

No. 15. Foster Brook, Pa.
100 wired m. c. brood-frames, in flat, including wire and tin bars. Present value, $3. 00; will sell for...... 2.75

No. 16. Johnson City, Tenn.
One No. 7 honey-extractor, with basket, only 15 in. deep. Present price, $8.00; will sell for................ 6.00

No. 17. Cairo, W. Va.
One 2 story Simp. hive, rigged complete for comb honey, and 5 lbs. fdn., ½ thin, for sections, and ½ for L. frames. Present value, $5.25; will sell for..... 4.75

No. 19. La Salle, Ill.
6-in. foundation mill. Present value $135.0 will sell for..11 50

No. 20. At San Marcos, Texas.
5000 prize sections. Present value, $22.50; will sell for 19.00

No. 21. At Braintree, Vt.
1 lamp nursery, minus the thermometer; 1 A B C book, in paper, edition of 1883; 4½ lbs. thin fdn. Present value, $7.25; will sell for......................... 5.50

A. I. ROOT, Medina, Ohio.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

Wanted. To exchange for cash, three farms, five miles south of Atlanta, Ga., one with 92¼ and two with 43 acres each. Call on T. A. POOLE, near farm, or address E. B. PLUNKET,
22-23d Palmetto, Manatee Co., Fla.

FOR SALE CHEAP.

Owing to different arrangement of machinery in our new building we have for sale at half their cost the following:

Three 18-in. adjustable drop-hangers for a 2 15-16-in. shaft. Cost $10.00 each; will sell for $5.00.

Nine 18-in. adjustable drop-hangers for a 2 7-16-in. shaft. Cost $10.00 each; will sell for $5.00.

Ten 30-in. iron pulleys, 10-in. face. for a 2 7-16-in. shaft. Cost $8.00 each; will sell for $4 00.

Exhaust-fan that has run six years, but has become too small for our needs, costing over $100.00 when new; will sell for $25.00.

The hangers and pulleys are just as good as new, and a bargain to the man who needs them. The fan is some the worse for wear, but with a little repair will do good service for years to come.

A. I. ROOT.

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary, **SUPPLIES**

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd **Hartford, Washington Co., Wis.**

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
4-3db

SURE TO SEND

FOR MY NEW

PRICE LIST FOR 1886,

Before purchasing your **Bee-Supplies.** Cash paid for Beeswax. 7tfdb

A. B. HOWE, Council Bluffs, Ia.

PREPARE FOR WINTER.

We have unequaled facilities for manufacturing the Root chaff hive at a great reduction from ruling prices. Mr. Zeno Doty, Grafton, Neb., writes July 9th, "Your material, make, and price is far better than I can get anywhere else." Send for price list and special prices for this fall. 16tfdb

A. F. STAUFFER & CO., Sterling, Ills.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

GOOD NEWS FOR DIXIE!

SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages 9tfb

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange my Given fdn. mill, good as new. I will take honey, or good winter apples for it. L. BECKWITH, Berlin, Wis.

WANTED.—Honey, extracted preferred, in exchange for hives, frames, section boxes, saw-mandrels, and bee-hive machinery. What have you got, and what do you want for it?
20tfdb D. S. HALL, So. Cabot, Vt.

WANTED.—To exchange for cash, or good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

FIRE! Fire! Fire! Brother bee-keepers, you all want my LIGHTNING FIRE-KINDLER, costing about the same, almost as necessary, and but little more trouble, than matches. Perfectly safe. No litter. Time, temper, and match saving; household convenience. It makes a fire immediately. Lasts a lifetime. Just the thing for your smokers when made one-fourth of the common size. Sent by mail for 20 cts.
20tfdb S. S. BUTLER, Los Gatos, California.

WANTED.—To exchange bees for land south of the Ohio River. Also for sale, about 120 lbs. of wax and a six-inch Pelham fdn. mill.
M. J. HARRIS, Clay City, Clay Co., Ill.

WANTED.—To exchange for extracted white clover or basswood honey, one foot-power saw; also one 10-in. Pelham foundation-mill, with dipping-tank, etc., nearly new. W. S. WRIGHT,
21tfdb 365 W. Van Buren St., Battle Creek, Mich.

WANTED.—To exchange for extracted honey, cash, or offers, one Adams horse-power, cost $40.00; never has been used over half a day. I will take $20.00 for it. It is just as good as when it came from the factory. 22-23d C. M. DIXON, Parrish, Ill.

WANTED.—To exchange 3 trios of fine Royal Imperial Pekin ducks, for sections. They are prize-winners. A few more premium Wyandotte and Plymouth Rocks to exchange for cash or sections, 4¼x4¼x2 in., as you prefer, or beeswax, or comb foundation. I have all choice birds.
22tfdb LOUIS WERNER, Edwardsville, Ill.

I STILL have 4 tested Italian queens; to close them out I will take $1.25 apiece, or the lot for $4.00; or I will take Simplicity bodies in exchange.
22d C. F. UHL, Millersburg, Ohio.

WANTED.—To exchange for pure extracted honey, apiarian supplies, or offers, one Star bicycle, but little used. Write for description.
Address C. H. WATSON, Newtown, Bucks Co., Pa.
22-23-24d

15 VARIETIES raspberries; fine plants, new varieties, in exchange for comb or extracted honey. For particulars, address E. T. FLANAGAN, Box 995, Belleville, Ill.—Eight acres in small fruits.
22-23-24d

WANTED.—To exchange for cash or offers, 2 clarionets, A and C, cocoa wood, 13 G. S. keys; used but little, and good as new; cost $40.00, will take $20.00 cash. A. LUDDEN, Shelby, Shelby Co., Iowa.
22-23-24d

WANTED.—Extracted honey for pure Pekin ducks, cockerels from Corbin P. Rocks, L. Brahmas, and Wyandottes; one black and six hybrid queens; also plants in the spring—Cuthbert raspberry, Cumberland Triumph, Mt. Vernon, and Sharpless strawberry. Please state price of honey, and what is wanted. G. A. FARRAND,
22-23 Kamm's, Cuy'a Co., O

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HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 22tfdb

A. F. Stauffer & Co., Sterling, Ill.

One-Horse-Power Shipman Engine

FOR SALE.

We have for sale a one-horse-power Shipman coal-oil engine that has been run 5 months. We received it in trade for a larger one, as it was too small for his work. The price of a new engine of this size is $125.00. We will sell this for $100.00, and include a 15-gallon galvanized-iron oil-tank, costing $5 00, and a galvanized-iron pan for the engine to sit in. The above engine is in first-class running order, and will be shipped from here. One of these engines, same size, has been running our county-paper printing-press for the past year, and pleases them much better than the 2-horse-power Payne engine they formerly had.

A. I. ROOT, Medina, O.

NOW READY.

Photographs of all the principal bee-keepers, including Langstroth, Newman, Root, King, Heddon, Demaree, McLain, Stanley, Given, Van Deusen, Mrs. Harrison, etc., 120 pictures, name under each, size 11x14; $1.00 by mail. Fifty of the principal ones, larger, on same size card, same price. 22d E. O. TUTTLE, BRISTOL, VT.

FOR SALE CHEAP.

Owing to different arrangement of machinery in our new building we have for sale at half their cost the following:

Three 18-in. adjustable drop-hangers for a 2 15-16-in. shaft. Cost $10.00 each; will sell for $5.00.

Nine 18-in. adjustable drop-hangers for a 2 7-16-in. shaft. Cost $10.00 each; will sell for $5.00.

Ten 30-in. iron pulleys, 10-in. face. for a 2 7-16-in. shaft. Cost $8.00 each; will sell for $4.00.

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The hangers and pulleys are just as good as new, and a bargain to the man who needs them. The fan is some the worse for wear, but with a little repair will do good service for years to come.

A. I. ROOT.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 19tfd
*S. F. Newman, Norwalk, Huron Co., O. 19tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 19tfd
*S. G. Wood, Birmingham, Jeff. Co., Ala. 19tfd
*E. Kretchmer, Coburg, Mont. Co., Iowa. 19tfd
*Jos. Byrne, Ward's Creek, East Baton Rouge
19tfd Par., La.
J. W. Winder, Carrollton, Jeff. Par.,
New Orleans, La. 3tfd
*E. Burke, Vincennes, Knox Co., Ind. 3-1
C. C. Vaughn, Columbia, Tenn. 15tfd
Bloomington, Ill. 15tfd
J. B. Hains, Bedford, Cuyahoga Co., O. 15tfd

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.
P. L. Viallon, Bayou Goula, Iberville Par., La. 15tfd
C. W. Costellow, Waterboro, York Co., Me. 1-23
R. B. Leahy, Higginsville, Laf. Co., Mo. 15tfd
E. Kretchmer, Coburg, Montgomery Co., Ia. 15tfd
C. P. Bish, Petrolia, Pa. 19-23

HOW TO WINTER BEES.

Essays by James Heddon, Prof. Cook, G. M. Doolittle, A. E. Manum, G. W. Demaree, J. E. Pond, Jr., J. H. Martin, C. W. Dayton, and P. R. Russell, all appear in the October number of the American Apiculturist. Send 10c in stamps for a copy.

Address AMERICAN APICULTURIST,
21tf Wenham, Mass.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

40-Horse-Power Engine for Sale.

Our new automatic cut-off 90 horse-power engine is now driving the machinery in all our buildings. Now, we want to dispose of our old 40 horse-power engine which has done such faithful work for us for the last eight years. It is a standard plain engine, Lord & Bowler make, 12x20, with a 9-foot balance-wheel and a 6-foot fly-wheel. We will offer it, put in good repairs, for $350 00. We will throw in the stone upon which the bed-plate is bolted, free of charge. For further particulars, write us. Whom shall we hear from first?

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The demand is good for all grades, and receipts have been very large of comb and extracted, our home bee-men having kept out of the market until this month. Having glassed every one-pound section on both sides, they are reducing prices, selling 60 pounds of glass with 160 pounds of honey, making our market lower. Their crop is about 70,000 lbs. White clover in 1-lb. sections, 12@13; in 2-lb. sections, 11; in ½-lb. sections, 13@14. Dark, in 1-lb. sections, 10; in 2-lb. sections, 8@9. California, in 2-lb. sections, 9@11. Extracted, white clover, 6c; dark extracted, 4@5; California white sage, extracted, 5½; amber, extracted, 5c. *Beeswax*, 22c. CLEMONS, CLOON & CO.,
Nov. 20, 1886. Cor. 4th & Walnut St's,
Kansas City, Mo.

PHILADELPHIA.—*Honey.*—The new comb honey coming in shows good quality. There was but little comb held over, and consequently new arrivals sell well. Fancy white comb in 1-lb. sections, in paper boxes or glassed, commands 12@14c; and 2-lb. sections, glassed, 10@12c; while lower grades of both sizes go at 8@11c. Dark pungent-flavored buckwheat honey will probably be a good crop, and go lower. The crop in New York, Pennsylvania, and Vermont, is reported fair, while Illinois, Iowa, Kansas, and Wisconsin are said to have yielded well. A small quantity of Southern strained irregular honey comes here, and sells as low as 50c per gallon. The crop there is large. Eastern honey in barrels sells at 5@6c. The California crop is reported heavy, and the 5-gallon cans (two in a case) find ready sale in the East. In consequence of the big crop of this splendid California honey, and low freights, there have been a number of cars disposed of here already at 4½@5c per lb., and much larger sales are expected in cooler weather.
PANCOAST & GRIFFITHS,
242 South Front St., Philadelphia, Pa.

ST. LOUIS.—*Honey.*—We have to report the honey market dull. Market overstocked, and, to make sales, former prices have to be shaded. Choice white clover, 1-lb. sections, 12½@13c; 2-lb., mixed stock, 10@12c. Extracted, white clover, in tin cans, 5@6c. Southern, in bbls., 3@4½c, as to quality. California honey, white sage, comb, 1-lb. sections, 10@12c. Extracted, cans, 5@5½c. *Beeswax*, as it runs, 20c; selected, 22@23.
M. B. WESTCOTT & CO.,
Nov. 22, 1886. 108 and 110 Market Street.

DETROIT.—*Honey.*—Best white honey in 1-lb. sections, 11@12½c, with a large supply in commission houses. *Beeswax*, 23c. M. H. HUNT,
Nov. 21, 1886. Bell Branch, Mich.

CHICAGO.—*Honey.*—Demand light, and offerings quite free. White comb honey, small frames, well filled, 12@13c. White comb honey in same size frames, not well finished, 10@11c. Extracted ranges from 5@6c. *Beeswax*, 22@25c. R. A. BURNETT,
Nov. 23, 1886. 161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—There is a good demand for finer grades of comb honey, both 1 and 2 lb. sections. The market is well stocked, and with the large receipts coming in from the West we shall be obliged to reduce prices accordingly, in order to make sales. THURBER, WHYLAND & CO.,
Nov. 23, 1886. Read and Hudson Sts., New York.

BOSTON.—*Honey.*—No change in prices; demand fair. BLAKE & RIPLEY,
Nov. 22, 1886. 57 Chatham St., Boston, Mass.

CLEVELAND.—*Honey.*—The market is dull but steady. Best 1-lb. sections are taken slowly at 13@14c; second grade of white, 1-lb., 12@12½. Best 2-lbs., white, unglassed, 11@12. Buckwheat hardly salable at any price. Extracted, 6c. *Beeswax*, 25c.
Nov. 22, 1886. A. C. KENDEL,
115 Ontario St., Cleveland, O.

FOR SALE.—About 1000 lbs. of dark fall honey, for which I will take 8c per lb., delivered on board of cars. It is in 1-lb. sections, 48-lb. cases. Also 400 lbs. extra clover and basswood in same shape, at 12c.
EZRA BAER, Dixon, Lee Co., Ill.

WANTED.—A barrel of thick, well-ripened clover honey. New York or Ohio preferred. Address, with samples, W. E. SKINNER, Brightwood, D. C.

Untested Queens Ready to Mail
ALL WINTER LONG.

I have now on hand untested queens ready to send out by first mail. In regard to my responsibility, I would refer you to A. I. Root, with whom I received instruction in bee culture. The friends who order these queens during the winter time are expected to have sufficient experience to take care of them when they are received at the postoffice. In the Southern States, where the winters are so mild the bees can fly almost all winter long, of course there will be little more difficulty in receiving them in the winter months than at any other time. N. ADAMS,
Sorrento, Orange Co., Fla.

LITTLE SAMSON NO. 1.

Three-horse-power engine for sale; been used only 3 months. Made by Millar & Son, Utica, N. Y.; 24-inch balance-wheel, and 8-inch driving-pulley. Cylinder has 4-inch stroke. Governor complete. Good as new, and in perfect working order. Price $50 cash; cost us $90. F. D. WOOLVER,
23-24d Munnsville, N. Y.

ALSIKE and white clover seed at retail and wholesale. E. S. HILDEMANN,
23d Ashippun, Dodge Co., Wis.

10-INCH FOUNDATION-MILL FOR SALE.

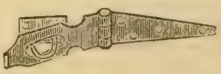
A friend at Carson City, Nevada, has one of our improved 10-inch foundation-mills, with dipping-tank and boards, that has *never been used*, he having been taken sick soon after he received it. At our present prices it is worth over $23.00. We will sell it for him at $22.00 for the outfit complete. This is a good chance for some Western bee-keeper, who wants a mill, to save quite a sum in the way of freight charges.
A. I. ROOT, Medina, Ohio.

HOW TO RAISE COMB HONEY.

Price 5c. You need this pamphlet, and my free bee and supply circular. 18tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

Recent Additions to the Counter Store.

THREE-CENT COUNTER.



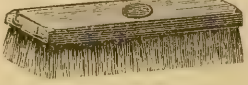
4 | HINGE HASP, entire length, 6 in...... | 28 | 2 75

FIVE-CENT COUNTER.

9 | HINGE HASP, length 10 in.................. | 40 | 3 50
Same as 3 cent one, but larger.
3 | HAIR-PINS, 100 assorted.................. | 45 | 4 00
In a neat box with 4 compartments, and 25 in each.
2 | WARDROBE HOOK, BRASS .... | 35 | 3 00
A new design; very pretty and convenient.
| SCHOOL SLATE, 10x14 frame .... | 48 | 4 50
☛We have sold slates a good while, but never so large a one as this for a nickel.

TEN-CENT COUNTER.

9 | BRUSH, RICE-ROOT .... | 90 | 8 50



This is the best thing I ever came across in the shape of a horse-brush. It is so stiff that it will take the mud off in a hurry, and yet it is not so stiff as to be injurious as a curry-comb sometimes is. The men who have used them are loud in their praise and would not be without one. I have known men to pay 75 cts. for one little if any better than those we sell for a dime. Besides being a good horse-brush, they make an excellent scrub-brush.

1 | SEWING-MACHINE NEEDLES .... | 80 | 7 00
For any sewing-machine made. Three assorted needles, cloth-stuck in a paper. These are very good needles. Three papers for 25 cents.
A. I. ROOT, Medina, O.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F. A. Whiting

Vol. XIV. DEC. 1, 1886. No. 23.

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Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18c per year extra. To all countries NOT of the U. P. U., 42c per year extra.

EXTRACTED HONEY.

HOW TO HAVE IT EQUAL TO COMB HONEY IN EVERY RESPECT EXCEPT APPEARANCE.

WITH reference to my article in last number, on page 882, in your foot-notes, Mr. Editor, you ask me to give my latest experience in obtaining perfectly ripened extracted honey, with the least amount of labor. I will do so, and "hew to the line, letting the chips fall where they may;" and if they fall on top of my new hive, and I proceed to brush them off before all your readers, I hope no one will accuse me of seeking to advertise in the reading-columns. That is something I do not wish to do; but I see that incidental advertising is an absolute necessity, many times, to the end that we may present our best thoughts; and I for one wish to present no other than my best, upon any subject that I undertake to write upon.

If you refer to my book and circular for 1886 you will notice that, wherever I mention the superiority of the new hive, as viewed by me, I usually add, "for comb honey." Now, during the past season we believe we have demonstrated that it is equally superior for the production of extracted honey, as we find it perfectly fits our theory and practice of producing rich, oily, dead-ripe extracted honey, which is in every way equal to comb only, except in appearance, and that its peculiar construction enables us to take the honey through that hive with considerable less labor than is necessitated by the use of other hives, all of which I will try to make plain further on.

Let us inquire into the philosophy of the ripening process. It is supposed by many that the capping or sealing of cells is a factor in favor of the ripening of the honey they contain. No doubt this idea has gained credence because we usually find the ripest honey within capped cells; but such is not the case, however; for the ripening process goes on more slowly after capping than before; and it would not continue at all after capping but for the fact that the material of which these caps are made is more or less porous. Just how or why, I do not understand; but I believe I have demonstrated that the peculiar heat and currents of heat contained within the hive of a populous colony possesses, in an eminent degree, a peculiar superiority for perfecting the ripening process; besides this, before the honey is sealed, and after the time that many extract it, if left in the hive we are told that the younger bees several times re-swallow and re-eject it into the cells—another thing which gives it a rich oily nature. Be this true or false, after the most thorough experiments with the artificial ripening process mentioned in last issue, I have found that, some way or other, there is no other extracted honey equal to the hive ripened article. Believing it is clear to the reader that, while cappings and ripe honey are usually found together (because the bees will not cap it until it *is* ripened to a certain consistency, at least but that capping), rather than being a cause, is a hindrance to such ripening, I have no doubt but that my readers of a larger experience will readily conceive the idea that a judicious and thorough system of *tiering* will have a great tendency to prevent capping, and, at the same time, aid the ripening process.

We use from two to four extracting-supers, each having the full capacity of the 8-frame Langstroth hive; and as soon as the bees began to seal the combs in their first super, we lift it, sliding an empty one under it; and if they still persist in capping the combs of the upper one, we again slip under both another one, all the time keeping those furthest advanced high up, where the ripening process is going on, but where the bees are discouraged from immediately capping the cells.

This tiering system is not new, but I am dilating more especially with regard to a radical use of it for the special purposes above mentioned. Before we consider the honey in any super to be "dead ripe," we usually find a minor portion of the cells of nearly every comb capped over; but did you never notice the fact that it is four times as much work to uncap a comb which is completely sealed as it is one only half capped over? This is because the first cells capped are those most elongated, which are very easy to uncap, while it is the lower surfaces that make us all the hard work. You no doubt remember that we use the new hive for extracted honey by adding brood-cases in the place of surplus-cases. We use one and two brood-cases for a brood-chamber, according to the time of year and system of "contraction"—a most valuable system for the production of comb and extracted honey, and one which, if I remember correctly, has not been fully described in GLEANINGS. Whether our brood-chamber consists of one or two brood-cases between it and the extracting-department, composed of a suitable number of other brood-cases, we use the combined wood and metal queen-excluding honey-board, described and illustrated on page 613, Aug. 1, 1886.

Now, with these shallow sets of frames securely held within the cases, we practice the tiering method to its greatest perfection because of their shallowness, and by virtue of the shaking-out function gained by the peculiar construction of the cases (a function which I consider the most valuable of any contained in my hive or any other) we are able to remove these cases from the hives with the certainty that there are no queens or brood within them, shaking out nearly all the bees with a few motions, placing the cases in our screen-house till the few remaining have deserted, all of which we can do without exposure to robbers, even when they are most persistent, and carry the cases to our honey-table, loosen the screws, lifting the case away from the frames, all of which set up ready for the uncapping-knife. I find these shallow combs very much easier to uncap than deeper ones. I found this out 15 years ago, when using shallow combs in Langstroth frames. These frames hang in the extractor in pairs, side by side, hanging on the projection of the end-bars, which, you remember, are wider than the top and end bars; and when used in common machines that are not automatic. In reversing the combs they can be turned around without lifting out of the machine, as is necessitated with L. frames. It will be seen that it is not only true that these shallow brood-cases are best for the tiering method, where perfect ripening of the honey is desired, but it is also true that we can take a surplus crop through them with less labor than with any other frames, which, I believe, exactly answers the question you ask on page 883.

It may be claimed, contrary to the above, that there is quite an expense attached to the supply of so many sets of combs and supers; to which I reply, "I grant it;" but that does not disprove that their use will give us a No. 1 extracted honey, such as will sell itself, and that, too, without practicing the compressing method, which costs us nearly half of our honey-crop. If we should figure an interest upon the investment I now have in thousands of nice combs from full sheets of fdn., on wires, it might prove that my 1886 crop has cost me 1 cent per lb. more because of this outlay; but if you will allow the bee-keepers who have purchased most of my crop—purchasers who are the best of judges of quality—to speak through GLEANINGS it will give your readers a fine opportunity to judge as to whether or not such perfectly ripened honey is worth 2 to 3 cents per lb. extra. JAMES HEDDON.

Dowagiac, Mich.

Friend H., there are several good points you make in the above. The plan of leaving the whole crop of honey on the hive, over the bees, until the season is over, belongs to friend Dadant, I believe, although before he gave it in his little book we did the same thing one season, when we were greatly pressed for time; namely, we piled Simplicity hives one over the other, until they were, some of them, four or five high, and the result was just about as you state it. When the combs were raised up before they were well capped over, the bees seemed to leave them partially uncapped, and the honey obtained from these piles of hives was certainly equal to any we have ever secured. I think you are right, too, in saying that these small frames, or shallow frames, rather, are much easier to uncap than full-sized L. frames; and your third point, of being able to reverse them in any common extractor, it seems to me, is quite a big item. The assistant who does the uncapping, uncaps both sides, and stands the little frames on a shelf, board, or, perhaps, still better, a couple of strips with a pan underneath to catch the dripping. The broad ends with only a narrow frame will keep them upright of themselves, which will be quite an advantage; then the one who operates the extractor, instead of taking the heavy comb with both hands will take two smaller ones, one in each hand. When uncapped he reverses the two, one in each hand, as quick as he would reverse a large one, granting there were room inside of the extractor to do it. In working the shallow frames for extractors, if I understand you, you simply raise each tier of combs when nearly ready to cap, and put an empty case of similar frames under it, and so on until the bees gather all they are going to for the season, leaving every comb on the hive until the season is over. I am inclined to think that bees will store more honey where none is taken away from them than where we keep "robbing" them all the while, as our Southern friends put it. Of course, we can not work this way for section honey, for it would be soiled and spoiled for market; whereas, for extracted honey it is just what we want. And this reminds me that a real nice well-ripened article of extracted honey is often really *nicer* than a great deal of our very clean white perfectly capped comb honey. It looks, to me, just now as if quite a number of us might think best to try shallow combs for extracted honey another season.

HONEY, AND ITS PRESENT LOW PRICES.

SOMETHING IN REGARD TO THE MATTER, FROM ONE OF THE LARGEST, IF NOT THE LARGEST, HONEY-DEALER IN THE WORLD.

I MAY remark to our readers, that I wrote to friend Muth in regard to the letter from friend Park, on page 812, Oct. 15, 1886. The following is his reply:

Friend Root:—I am acquainted with the quality raised in the neighborhood of our friend Park. It is a nice article, rather above the medium quality of Southern honey; but we have no use for it now, because the demand is very slow from manufacturers, to whom only we can sell Southern honey, and because we have still on hand nearly 300 bbls., which we bought and paid for some 12 or 18 months ago. Besides the above, we have 55 bbls. more, sent us contrary to our advice, for which we have not paid. But they were sent us by our friends in good faith, that we would sell them before this, and none of us could apprehend that the demand from manufacturers would let off so. We now make to each one an offer for this lot. A few hundred barrels of honey has never troubled us much, as we turned out 10 to 30 bbls. a week, one or two years ago. We supplied a number of bakers, the best of whom got 5 bbls. a week steadily for 2 years or more. We supplied, also, regularly, a number of tobacconists, the best of whom received 3 bbls. every other day. We have not lost any of our customers, but they don't need as much as they used to. Our best baker orders now 5 bbls. in two months, and our best tobacconist one or two in a month. The one says: "Honey-cakes are played out;" and the other, "There is no money in tobacco now, and factories run only to a certain extent." Similarily say the rest.

I should be sorry for our Southern friends if the demand for their product should not revive; and I believe that the present dullness, prevailing in almost every branch of business, is the only cause for the stagnation in the trade in dark honey.

Our jobbing trade for clover honey in our square glass jars and tin buckets is very good this fall, and we have sold very many lots of nice comb honey. We have no reason to complain of this branch of our business. However, honey is too cheap to satisfy producer or dealer, and low prices are generally no stimulus to business.

We have used extensive efforts to introduce extracted honey, and to stimulate demand, and we thought that we had succeeded until lately.

If we don't supply all, we supply certainly 9 out of 10 bakers in our city with honey. They all use more or less, but—while we are thankful for all small favors, we want more, and we are used to larger sales. CHAS. F. MUTH & SON.

Cincinnati, O., Nov. 18, 1886.

The above is somewhat discouraging, I grant; but it is best for us to know the real facts, even if they are discouraging, and then we shall be prepared to face them. This honey that sells so very low is not, as friend M. has already decided, of the very best quality. I have, in our back numbers, mentioned the honey from alsike clover, obtained by friend Goodrich, who exhibited the crop at the Ohio State Fair. Now, although we have tons of honey on hand (and some of it we offer as low as 6½ cts. per lb., by the quantity), we have just offered friend Goodrich a price that amounts to something like 12½ cts. per lb. for what alsike clover he has left. It is what we call "gilt edge," and we expect to get a "gilt-edge" price for it. The honey from the South does not seem to bring as good a price as the white clover of the Western Reserve; and the moral seems to be, that our Southern friends will have to encourage the growth of the clovers—red, white, and alsike. The latter, I believe, is ahead of all where it thrives naturally.

TEASEL CULTURE.

CAN IT BE PROFITABLY ENGAGED IN BY BEE-KEEPERS?

THE seed is sown, usually, as soon as the ground can be thoroughly worked in the spring, as it requires plenty of moisture, and more time to germinate than most seeds. The sowing was formerly done by hand-drills in marks previously made, three feet apart; but now the ordinary horse-power grain-drill is used to some extent. If sown with a hand-drill, the seed is covered with either a rake or brush, or sometimes an ordinary field-roller. The plant seldom comes up in less than two weeks, and is not unfrequently four weeks in making its appearance. At first, none but an experienced eye can tell it from a Canada thistle that has just come up from seed. But the first set of two or three true *leaves* places the plant beyond any danger of getting cultivated up as a weed.

The first hoeing begins soon after corn-planting, and is accomplished by passing, with a light small hoe, up one side of the row and back on the other, cutting as close to the plants as possible, and always pulling the dirt from the plants. The horse-cultivator is used freely, and it is wonderful how close an expert will work to the row without injury. The first hoeing is generally accomplished before any of the plants are more than an inch high.

The second hoeing should not be delayed more than two weeks after the first. At this time *every* weed is taken out; either with the hoe or fingers, and the plants thinned to from 4 to 8 inches in the row.

This is accomplished from July 1st to 10th, and well cultivated with a horse twice or three times between each row. They are then allowed to go untouched until the following spring.

Of late years, growers have been in the habit of planting half a crop of corn, plucking the ears off, and leaving the stalks to catch the snow (they are liable to winter-kill if uncovered in severe cold spells). I have, with good results, omitted the corn, and with a plow turned a furrow right on to the plants late in the fall.

The first season, the plant flats out; the leaves, lying on or near the soil, make a solid green belt nearly two feet wide, and not more than six inches high. Walking or driving over a field does apparently no injury. If they survive the winter, as soon as the ground can be worked they are thoroughly cultivated (but seldom hoed), and the corn-stalks gathered off. Cultivation should be kept up until they begin to "run," which is early in June At this time a stalk shoots up very rapidly from the center of the plant. It is so brittle that a slight push will snap it off. This stalk reaches a height of 4 or 5 feet, and terminates in what is called the "king teasel," or the largest head on the plant (2½ to 4½ inches long). Below the "king," several branches will start out, each bearing teasels, or heads. The center head of these branches, or laterals, is called a "medium." "Mediums" are from 1½ to 2¾ inches in length. From these laterals spring still other branches that bear still smaller heads called "buttons." These are 1 to 1½ inches in length. One plant will produce from 10 to 25 heads.

They begin to blossom early in July. The "king" blossoms first; the "medium" next; and the "buttons" last. Each individual head remains in blossom from seven to ten days. The whole season I should put at about 25 days. Of course, the largest number of heads would be in bloom about the middle of the 25 days.

As soon as the blossoms all fall off, the heads are cut (one at a time) with stems from 4 to 6 inches long, loaded in wagons, and drawn to the dryhouse, where they are spread on scaffolds and allowed to remain until they are dry. They are then ready for the middlemen, who buy them by weight (6 cts. per lb. is the present price). With shears they cut off the long spikes at the base of the teasel, as shown in Oct. 1st GLEANINGS, p. 769 (a very good cut). The stems are cut to a uniform length of 4 inches, and assorted into sizes according to length. A pound of "kings" is worth as much as three pounds of "buttons." They are packed by hand, one at a time, in large boxes, ready to ship to woolen-factories, where they are used in raising a nap on cloth.

The teasel district is not more than ten miles square. The soil and climate must be favorable, to grow them of good quality. They have been experimented with in other parts of the State, and in other States are said to have produced vigorous plants; but the teasels at maturity lacked firmness of hook, and at present I know of no place where they are grown, except here and in Europe.

C. M. GOODSPEED.

Thorn Hill, Onondaga Co., N. Y.

And so it would seem, friend G., that there is not much hope for bee-keepers to raise teasel, unless they raise it for honey alone, which very likely won't pay; but as there are woolen-mills all over our country, it may be worth while to test the matter and see if it is not likely that *good* teasels can be raised in other places as well as in this favored ten miles square. I would advise bee-keepers to talk with the proprietors of woolen-factories, and see if some arrangement can not be made to at least test the matter. We certainly do not want to import teasels from foreign countries, unless it has been well proven that just as good ones can not be raised here at home.

SHOOTING TO BRING DOWN SWARMS.

INVERTING TO PREVENT SWARMING.

A FEW weeks ago you asked for reports about shooting into swarms to make them settle, and about inverting hives to prevent swarming. Three or four years ago a swarm came out when I was in the field. My wife first shot past the swarm. This did not seem to affect them. She then shot right into them; and, although they had by this time started to leave in earnest, they came down as quick as possible, and were hived all right.

Last summer I had a prime swarm cast a swarm, but the swarm did not settle, but went back to the hive again. I inverted the hive (a Shuck hive with a queen-excluding honey-board), and they gave no more trouble.

I don't like queen-excluding honey-boards made of wood. The bees fill the spaces too much. I should be glad to hear more from those who have used the combined wood and zinc boards.

A FOLLOWER FOR THE HEDDON CRATE.

For getting sections out of cases made on the Heddon principle, I use a follower made as follows: I dress a piece of 2×4 scantling to the proper width; a piece the same size, but ⅞ inch thick, is nailed on top with a narrow piece ⅞ inch thick, separating them at each end. In the top-piece I make a hand-hole 1 inch by 4. I support the cases on a bench, as recommended by Mr. Heddon.

BEE-BRUSHES.

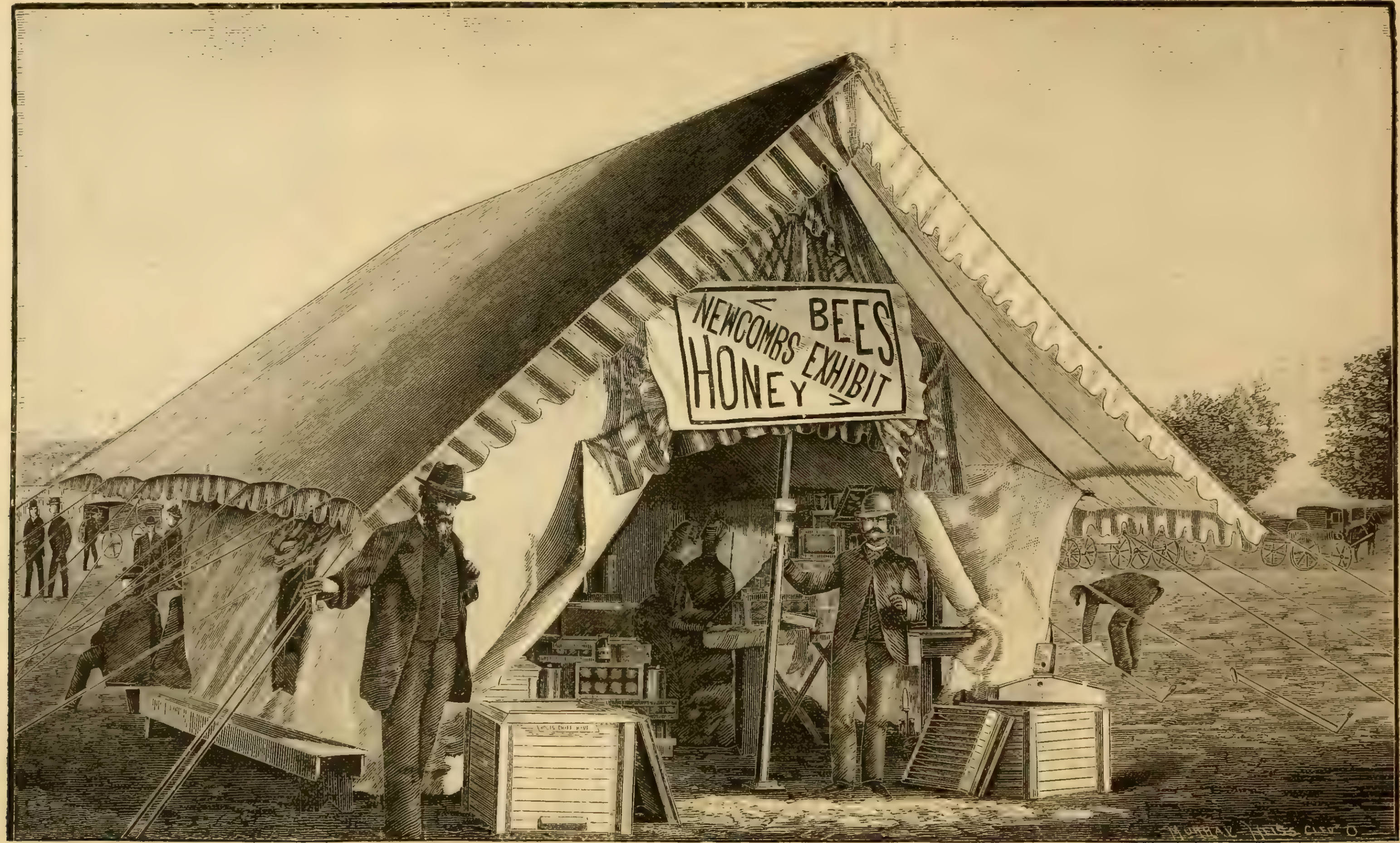
Some one recommends fastening the bee-brush to the operator with a string. I have tried it this season; but when the cord is sufficiently long for convenient use, the brush is sometimes in the way. I think a light rubber cord would be an improvement. If the cord passed through a loop or button-hole at the waist, and were fastened to the collar-button, it would hold the brush close to the body when not in use. 6—G. M. THOMSON, 25—51.

Grand Junction, Iowa, Nov. 20, 1886.

FAIRGROUND EXHIBITS.

A GLIMPSE OF A YORK-STATE FAIRGROUND HONEY-EXHIBIT.

IT is unquestionably one of the great helps toward educating the people up to the capabilities of modern bee culture, to take advantage of our State and county fairs; and it well behooves us to bestow thought and money in devising ways and means to make these exhibits attractive to those who attend our fairs. The engraving opposite gives us a glimpse of one of the best of these arrangements, in my opinion. I do not know whether the managers furnished this attractive tent for the honey-exhibits or not; in any case, I think you will agree with me that the whole arrangement is quite taking to the eye. Inside there is plenty of room, and things are so nicely arranged that even the ladies find it an attractive place. A couple of windows are shown in the cut, to make it light and airy, enabling the occupants to look out over the grounds. Around the outside are benches, affording a seat, while the weary visitor finds a shady place under the wide canopy of the projecting veranda around the tent. The doorway is tastefully looped up to make it look inviting to visitors, and a pretty card attached to the center-pole tells everybody what the tent is for. "Root's chaff hives" stand prominently in the foreground. Honey in jars, cans, and sections, stands a little back of it. On the other side is a Bingham smoker, as we take it, a case of the new shallow frames


NEWCOMBS BEES EXHIBIT
HONEY
MURRAY HEISS CLEV O

E. R. NEWCOMB'S HONEY-EXHIBIT ON THE FAIRGROUNDS. POUGHKEEPSIE, N. Y.

tipped up against the hives, and inside we shall doubtless find pyramids of honey, beeswax, and the various utensils for working with the honey-bees. How very natural our friend in the foreground looks, with his thumb in the arm-hole of his vest! One can almost catch a sly twinkle in his eye, and no doubt he could give us "piles" of information while he made us feel happy by his occasional jokes and pleasantry. I tell you, my friends, a successful bee-man, fully up to the times, is a nice man to talk with. Yes, so is a successful bee-*woman* a nice woman to talk with; and I should not wonder a bit if our honey-shows on our fairgrounds have a good deal to do with making people want to go to the fair next year.

The above exhibit was made by Mr. E. R. Newcomb, Pleasant Valley, N. Y.

THE MARKINGS OF QUEENS AND THEIR PROGENY.

CYPRIANS, SYRIANS, ETC.

EDITOR GLEANINGS:—Nearly every customer who orders a queen wants it to be a fine "yellow one;" and if it should not prove to be just as yellow as they pictured it they are a little disappointed when it arrives. All our queen-breeders know that this is usually so in almost all instances. Many bee-keepers suppose that, if a queen is of a bright beautiful yellow color all over her abdomen, she will, as a rule, produce finely marked bees, if she be purely mated. This is not so. The finest-colored queen ever bred, if mated to a dark-colored drone—or rather a drone reared by a queen that produces a poor-colored progeny—will invariably produce a poor progeny herself, while, if mated to a fine drone, equal in all respects to the color of the queen to be mated, then their progeny will be an exceptionally good one.

Some of the finest-marked progeny of worker-bees from queens I ever had, came of some of my dark-colored queens—these, too, that had rings on the rear edge of the last three or four segments of their bdomens. In other instances I have had some of the poorest-marked bees I ever had, from some of my very yellowest-colored queens, those which had no dark rings, and only just a speck of black on the tip of their abdomen. Real dark queens will produce mostly a dark progeny of queens, when used to rear queens from; still they will occasionally produce a queen that is as bright as the brightest are. The reverse is the case with real yellow queens. They will, as a rule, duplicate themselves in their queen progeny, yet will occasionally produce real dark-colored young queens, those having rings (black) on the last segments of their abdomens. Judge Andrews, of McKinney, Texas, makes the claim that all queens which show black rings on the hindmost part of the last three or four segments of their abdomen have in them black blood; that these rings of black on the segments are evidence of black blood in such queens as show them; also that *pure* queens should duplicate themselves in their queen progeny. If we are to accept these claims as correct, for the purity of any race of bees now in America, we must certainly discard our Italians, Syrians (Mt. Lebanon strain), Carniolans, Cyprians, and their crosses.

I have never yet found that queen—although I have been on the alert to do so for the past four years—which would invariably duplicate herself in her *queen-progeny*. I have had many that would do it in one batch of 12 or 15 cells, when from the very next batch of 12 or 15 cells reared from eggs of the same queen, there would hatch two or three dark-winged queens.

I *think* G. M. Doolittle made the statement in the present volume of GLEANINGS, in his communication on "Queens and their Markings," that Syrians and Cyprians, as a rule, produce brighter-colored queen-progeny than any other race. This is just contrary to my experience. I find that, as a rule, the best-domesticated Italian queens produce the yellowest queen-progeny of any race we have. I think our best-domesticated bees of any race are superior to any newly imported ones. Syrian queens, bred of a select first-grade queen from Mr. Frank Benton, direct, all showed dark rings on the segments of their abdomen, even the very brightest ones; and many of them were quite bright too.

Cyprians bred in 1885 from a queen I got of B. F. Carroll, Dresden, Texas, were similar to Italians in the markings of the queens, some quite bright, and others quite dark. I have always doubted the purity of the Carroll queen as being genuine Cyprians, and now I do more so than before, since I got a first-grade Cyprian from Mr. F. Benton, mailed at Larnaca, Cyprus, July 19, 1886, and received August 18, just 30 days making the voyage, and not a dead bee in the cage. There is much difference in the temper and qualities of the imported Cyprian, compared with the Carroll stock, the imported being much more docile; and then they are a smaller bee, with a more point-shaped abdomen than the Carroll stock. The queens reared from this imported Cyprian are all much darker than Italian queens are; but the worker-progeny are extremely well and very uniformly marked, and all the bees look just alike, young and old (matured bees), with the exception that many of them show plainly four distinct yellow bands on their abdomens.

I have two queens reared of this Cyprian, and mated with my American-albino-Italian drones, and their progeny are certainly the finest-marked bees for a first cross that I ever saw, and appear to be excellent workers, so far as tried.

Dr. Geo. L. Tinker and myself exchanged a queen this season. I gave him a select American-albino-Italian queen in exchange for a select Syrio-Italian queen, and I frankly admit that the doctor's Syrio-Italians come the nearest to rivaling my American-albino-Italians of any bees I ever have had of any breeder. The doctor deserves the praise and patronage of our bee-keepers, beyond doubt, for such grade of bees. 4—ABBOTT L. SWINSON, 71—70.

Goldsboro, N. C., Nov. 22, 1886.

Friend S., if I am correct, B. F. Carroll does not claim his Cyprian queen is full blood. He does claim, however, I think, that his strain has given wonderful yields of honey.—After we found out the temper of the Cyprians, few if any of us wanted full-blooded stock, as it is well-known they are very much milder in temper after being crossed with the Italians. There is also quite a difference in all imported queens, if I am correct. Are you not breeding more for looks than you are for honey-gathering qualities? We want the honey—that is the great point.

DR. C. C. MILLER, OF MARENGO, ILL.

SOME REMINISCENCES FROM MEMORY, OF FRIEND MILLER.

I AM glad to be able to give the readers of GLEANINGS so good a picture of a contributor who is now so well and so widely known by his articles, and by his contributions to other journals as well as to GLEANINGS. Those who have met him at our large conventions will, I think, agree with me that the picture is a good one.

I may have told you something before of my first acquaintance with Dr. Miller; but if I did, it won't do any harm to tell it again here. It must be something like fifteen or sixteen years ago that a stranger called and wanted to talk about bees. I was just then getting ready to go out bee-hunting, in order to be able to write intelligently on that subject. So many had come to see me about bees that I felt a little impatient at being hindered just then; but as this visitor seemed to be quite an intelligent man, I told him I should like to have him go with us, if he cared to, but I didn't much expect he would relish a tramp in the woods. He was not so stout a man then as he is now, but he looked to me then more like a dry-goods clerk, or a young doctor or lawyer, than he did like a farmer or even a bee-keeper. I was a little surprised when he said he would like to go, above all things.

While we were in the woods, looking up among the trees for a bee-tree, I began whistling, absently, a simple little air from Root's Curriculum, for I was then taking music-lessons. He made the remark, that what I was whistling was rather pretty. I told him I thought it very pretty indeed, even though it was just a simple little exercise for beginners in music.

"Well, I am glad you like it, Mr. Root, for it is something I composed myself."

I turned about and stared at him, and concluded that he was not only a brag, but that he was untruthful; and I replied, a little dryly, that he must be mistaken. It was an exercise I had just learned from the Curriculum.

"Can't help it, Mr. Root; I composed it, all the same."

As he saw I didn't believe it he said nothing more about it; but when we got home he asked if he might look at our Curriculum; and as he did so he placed his fingers on a foot-note on one of the pages, to the effect that Dr. C. C. Miller had assisted in the compilation of the work. I nodded.

"Well," said he, "that refers to me. I am Dr. C. C. Miller."

Of course, we asked him to play for us; and by and by we were very glad to have him consent to stay over night with us, and, in fact, make our home his home so long as he remained. We went over the bees and other things; and finally, just before he was about to take his leave, he surprised me still more by a little talk something like this:

"Mr. Root, I think I may confess now, that I had a plan and purpose in making you this visit, besides learning what I could

DR. C. C. MILLER.

about bee culture. I have read your writings a good while, and I knew you, even if you did not know me. I wanted to say something to you; but I felt that, before I could say it, I must have you get acquainted with me, and I wanted to win your confidence, that my words might have influence with you. I have now got acquainted, and I think I have won the friendship and confidence both of yourself and your good wife, if you will excuse me for being somewhat presuming."

He paused here, and I believe that my wife and I both felt a little as did the good people over in England when Moody and Sankey first came among them. The people were anxious to know what the evangelists had to sell, or whether they were agents for a new musical instrument, or something of that kind. Dr. Miller, however, soon dispelled these thoughts by something like this:

"Mr. Root, I want you to be a Christian. I want you to exert the inflence you possess, and to use the hold God has given you on the hearts of the people, for the cause of the Savior."

I can not remember what else he said just then, but I hastened to tell him that I was already in favor of Christianity and good morals, and I expected him to "let up," as the expression is, in the same way I had induced our pastors and other good friends to pass me by. He had no intention, however, of giving up thus easily. He told me that he who is not *for* the Savior is against him, and kindly and pleasantly insisted that my influence was on the wrong side. I quizzed him and questioned him, and tried to make him compromise a little, but he held fast to the Bible and to Bible texts with such earnestness and faithfulness that I never got over it. He talked with all the energy I had heard drummers and runners talk to sell goods, but he had nothing to sell. He held up before me Christ and him crucified, and pointed me to the open door of salvation — open to all who will accept it without *money* and without *price*.

When I began to get intimately acquainted with Prof. Cook, the two men reminded me so forcibly of each other that I wrote to both that they must get acquainted with each other. In a little time they became acquainted, and I was not disappointed. Once when in sore trouble as to where duty lay, it occurred to me I should like the counsel of two such men as Dr. Miller and Prof. Cook, more than the counsel of any other two men I knew of in the world. As it was during a State convention, I started out, although it was somewhat late in the evening, to find them. To my surprise I found them rooming together; in fact, they were just getting ready to retire. I stated the case to them; and after one proposed that we should take the matter to God in prayer, we knelt down then and there, and had a little prayer-meeting. I shall always remember the prayers of those two friends; and I shall always remember, too, the feeling of safety and security I felt as the little meeting closed. It does not seem to me that one can go very far wrong when he takes the advice, given after praying over the matter, of two good Christian men. I do not mean that the two think *alike* on all the great issues before us, for indeed they don't; but they are both earnest, faithful servants of the Master, and devoted heart and soul to the good of our people and to the good of our country. It does me good to see them both brighten up at the thought of any public movement for the well-being and happiness of humanity, especially for the youth of our separate States.

Dr. Miller injured his health by incessant hard study; and after practicing medicine to some extent, and giving it up on account of his health, he made music a profession. This he also abandoned for the same reason, and shortly after I first saw him he took up bees, with the prospect of small pay, when he was offered a salary by some of the leading music-publishing houses of our country, that might dazzle almost any one of us. He felt that the blessing of health, with God's sunshine and outdoor air, with even a small income, is better than large salaries and a broken-down constitution.

ARTHUR'S BEES.

A Story for Boys.

BY MRS. CASTELLA WHITMAN.

Continued from Nov. 15.

WATCHING his bees through the remainder of the season was a pleasant pastime for Arthur. He had always been a faithful boy, but it really seemed as if a new motive prompted him to greater exertions. No surplus honey rewarded him, but by being carefully protected through the winter they greeted him the following spring, when all nature was springing into new life; but, alas! how little did this family know what great sorrow was to come upon them! The darling baby-sister, the pet of the household, scarce two years old, was snatched from their midst, and laid to rest in her flowery bed on Decoration day. This great grief so unnerved the mother that it was a long time before she seemed herself again. Though always tender and self-sacrificing, she appeared doubly so now, and nothing was left undone that she could do to develop any thing noble and manly in her boys. Still, she was as ready to correct them, if she considered them in fault, as to commend when they had done any thing worthy of it.

Arthur's bees remained in their old hive, instead of being transferred, as he anticipated. They swarmed twice. The second swarm came out on the Fourth of July, and the children said they were holding their anniversary.

Thus two new hives were placed near the stately old barrel hive, forming quite a contrast, as Arthur's father had exercised a great deal of skill in making them.

I will hastily pass the remainder of this season by. Arthur, too, was anxious to see what another year had in store for him, notwithstanding he was often admonished that the present only is ours—the future is uncertain.

Before he scarcely realized it, another winter had passed, and it was time to place his bees on their summer stands. It was indeed a pleasure to the older members of the family to see the interest Arthur still maintained in them. Scarcely a day passed but that he would spend a few moments with them as he went to or came from his work; and occasionally have I had a glimpse of him at sunrise, partially sitting by the side of a hive, watching the busy workers.

As the season advanced, the work on the farm increased, and it was with a great effort that Arthur and his father kept their work up and made hives for the bees. Two of the colonies (as they had by this time learned to call them) swarmed three times apiece, and the third one twice, thus requiring eight new hives.

By this time the father expressed as much enthusiasm as Arthur himself. The family had noticed of late, that, in speaking of the bees, Arthur would call them *our* bees. I will here remark, that, though he possessed an impulsive disposition, he also possessed a manly spirit, which would not permit him to accept of any title or honor that did not rightfully belong to him; thus the term "our folks' bees" was universally accepted afterward. One day, as Arthur's father was glancing over his *Agriculturist*, he came across the following advertisement:

FRIENDS, if you are in any way interested in **BEES** or **HONEY** we will with pleasure send a sample copy of the **SEMI-MONTHLY GLEANINGS IN BEE CULTURE,** with a descriptive price-list of latest improvements in HIVES, HONEY-EXTRACTORS, COMB FOUNDATION, SECTION HONEY-BOXES, all books and journals, and every thing pertaining to Bee Culture. *Nothing Patented.* Simply send your address *plainly written* to **A. I. ROOT, Medina, O.**

"Nothing patented!" he ejaculated; then after giving the subject a little thought, he sent his address as recommended.

I have often heard Arthur's mother speak of the day the circulars, as she then called them, arrived. She was expecting company, too, that she felt unusually particular about. I do not suppose that every boy knows, but many a boy's mother does, how many extra steps are to be taken, and how much anxiety such an occasion requires, especially if they live on a farm where such a variety of work must be attended to.

Arthur and his father, notwithstanding they seemed so intent on perusing their circulars, assisted her somewhat, and the day with its cares and enjoyments passed away. During the remainder of this busy week the mother came across their papers many times, but only to put them in their proper place.

The next Sabbath morning dawned bright and beautiful. Arthur remained at home with his mother and younger brothers, while his father and the remainder of the family attended church.

Arthur spent the greater part of the day in reading, as usual. His mother had but little time to read, even Sunday, until dinner was over. It being ready at the usual hour for that day, she sat down with her paper in hand, waiting for their return from church. It was with a great deal of anxiety she watched the time go by, as they were obliged to cross a certain bridge that had been condemned. Arthur, noticing her concern, said, "Mother, perhaps you will find something interesting in this, handing her one of the said circulars, which proved to be GLEANINGS IN BEE CULTURE.

She was quite surprised, on glancing over its contents, to find it of so different a character from what she expected. It truly was *Gleanings*—articles written by different persons here and there all over the country, and then notes or comments by the editor on nearly every one. And still further on came "Our Homes," so full of such good thoughts and suggestions that they all thought the time was very pleasantly as well as profitably spent. Arthur's grandparents came in about the time his mother sat down to read, and they too were attentive listeners.

Thus the days and weeks of the summer flew by, Arthur often reviewing this number of GLEANINGS that I have referred to, and the price list that accompanied it. He often wished that they could subscribe for it. It seemed impossible just then, as his own weekly paper could not be dispensed with, and he had tried very hard to pay for it himself for the last few years. The price list not only gave the prices of bees, queens, hives, and all that pertained thereto, but also prices of their counter store connected with the factory. It was really surprising to note the many useful articles it contained.

The autumn months were near at hand, and so was Arthur's birthday. His mother could not think of letting it pass by unnoticed, as it was the family custom to present at least some little token of remembrance. Thinking it would be a pleasant surprise to receive something from Mr. R.'s store, she wrote an order for the same and also inclosed the price of GLEANINGS for Arthur's father, he having already sent for the A B C book. Perhaps it is needless to say, that, as such days returned, they all enjoyed it as much as the one who received the gifts. Nothing worthy of note transpired during the remainder of this year. The family spent many happy evenings during the winter months listening to Arthur as he read from his journals. They wisely reported the discouragements as well as the encouragements in bee culture. Thus by spring Arthur had gained much valuable information. Nor was it long before some of it was put in practice. Scarcely had his winter school closed when their bees were again on the wing. A little plot of ground was neatly arranged, and the eleven hives were set out in order upon it, quite after the manner of our modern apiaries.

By this time it was plainly to be seen, that, if they continued to keep their bees, something further must be done than simply to make a hive as it was needed. Thus far they had never been to any expense as far as dollars and cents were concerned, neither had they received any returns from the bees, save some honey for family use. Arthur and his father concluded it best to send for two hives of different styles before making any further arrangements. Being sent by express, they were soon at hand. Arthur's father brought them home in the evening, and the delighted children could not think of going to bed without seeing them set up, as they came in the flat.

It was evident, from the expressions of the whole family, that they more than met their expectations. They indeed looked like miniature houses, with their little porticos in front.

There was no more time to be lost. The season when they would need their hives most was rapidly advancing; but the contrast between the old and these new hives was so great, not only in appearance but in point of excellence, that, possessing the spirit of the times as much as the father and son both did, they could not think of using the old box hive any longer, even if money was scarce, and there were many other needs also; so a second order was soon made out.

They naturally expected there would be some delay, as they had taken time to get their sample hives, and well knew that other orders in advance would receive attention first; but as days lengthened into weeks, and yet they received no notice that they had been shipped, they grew quite impatient. Their bees had already commenced swarming, and had to be hived as before.

To be continued.

A GOOD REPORT FROM WEST VIRGINIA.

SOME VALUABLE SUGGESTIONS ON PRODUCING AND SELLING HONEY, BY ONE WHO MAKES BEES PAY.

I AM located in the "Pan Handle" of this State —that narrow strip of land lying on the Ohio River between the States of Ohio and Pennsylvania. The average yield in this part of the State might be put at 40 lbs. of comb honey, spring count. After some sales last spring I had 56 colonies left in my home apiary, and 14 colonies three miles out. The 56 swarms were so closely evened up by interchanging brood that they all had cast swarms within five days from the issue of the first swarm. Twenty-four first swarms in one day! When swarming had ceased there were but 56 colonies in the apiary, as before.

SWARMING, AND HOW TO MANAGE.

At the beginning of the surplus yield, each hive was supplied with a case of sections—room for 2000 lbs. of comb honey for the 56 colonies. By the time the sections were two-thirds full, swarming began. My queens are all clipped; and as fast as swarms issue they are hived and placed near the old stand.

All swarming for the day having ceased, the cases of sections are taken off; the combs in the hives are extracted of all the honey; queen-cells are destroyed, drones' heads shaved off. They then are returned to the original hive, where they are soon cleaned up by bees remaining at the old stand. The cases of sections are put in place; and just at sundown, each hive having that day cast a swarm, it is re enforced by another, and, as far as possible, a new location by interchanging is given the returned swarms. This seems to better satisfy them. By the next day (often the next hour), after being returned, the bees are back in the sections; and by the time there is further disposition to swarm, the sections are finished, when they are removed and the upper story filled with combs, for extracting what honey may yet be gathered. If there has been any preparation for swarming at the time of taking off the sections, this is broken up by destroying cells, placing empty combs in the brood-nest, or by any of the many well-known plans of breaking up the disposition to swarm.

This season I did not work for much comb honey, and hereafter I will work for less, as I have a much better demand for extracted honey. From the 56 colonies at my home apiary I got 2000 lbs. of comb honey and 3000 lbs. of extracted honey. I sold 34 three-frame nuclei from those which were formed by taking from full stocks, three frames having the most brood with the adhering bees and queen; this was done during the latter part of the honey-harvest. It lessened my crop of honey somewhat.

HOW AN INVESTMENT OF $40.00 REALIZED $240.00.

Last spring I bought 14 colonies in double-walled L. hives for $40.00. These were moved to within three miles of my place. They were generally weak. Some queens had to be superseded, as they were away past the "flower of their age."

By the time white clover was doing its best, these bees were ready for more room. I gave them a case with four full frames of comb and five frames with starters, which were soon filled and ready for the extractor. From these 14 hives I took 2000 lbs. of extracted honey, which brought me $240.00, and I have the bees left in fine shape for winter—a pretty good investment, I think.

Altogether from the 70 colonies I received 2000 lbs. of comb honey and 5100 lbs. extracted honey, and sold from them 34 three-frame nuclei. All are in prime condition for winter. Every colony has a queen of this season's rearing. My bees are ready for the winter, and all I have done was to make passages through the combs, cover the frames with a piece of woolen carpet, put over this a chaff pillow, open entrances wide, and leave on summer stands. I expect to find them all right next spring; at any rate I would not give ten per cent to have them insured.

My honey was all sold in the short time of four weeks, from the time I began to sell. Comb honey was sold for 18 cts., and an average of 12½ cts. for extracted. Part of the extracted was sold for art purposes; part for medicinal purposes, at 15 cts., and quite a good deal to families for table use, at 12½ cts. per lb., or ten lbs. for an even dollar.

A HONEY-RETAILING WAGON, AND HOW TO SELL.

On our retailing wagon we have a large tin can holding 400 lbs., with honey-gate and scales under this, which makes it convenient for quickly weighing the required amount. A case of comb honey is taken along to sell to people who will not buy any thing else. Some who could not be induced to buy extracted honey were gratuitously supplied with a "mess" "free for nothing;" and by the next time we "came around" there was another customer ready for a "dollar's worth of that strained honey." I can now sell 400 or 500 pounds of extracted honey in one day in some towns where, at first, it took fine talking to sell 50 lbs.

I often wonder why it is that so many of our bee-keepers have so hard a time in selling their honey. True, we are surrounded with many good-sized towns here; but commission men bring to these places great quantities of honey, which is offered low. To convince myself that

HONEY CAN BE SOLD IN ALMOST ANY PLACE,

I loaded up, one morning, 400 lbs. of extracted and 100 lbs. of comb honey, and started right out through the country. Among farmers I sold from 50 cts. to $5.00 worth at almost every farmhouse; and long before night we were home, and honey all sold.

It is at all times necessary to have a *first-class article* of honey to build up the trade. I bought, some years ago, 2 barrels of linden and one barrel of California sage honey, and sold it out on the strength of my reputation; but it was the means of hurting my trade for a long time. Linden and

California sage will do in the comb; but don't offer it in the liquid form, if your object is to establish a market for extracted honey.

JOHN A. BUCHANAN.

Holliday's Cove, W. Va., Nov. 16, 1886.

Friend B., I should say you got a very fair price for your honey during the present season of low prices; but it took some labor and some energy to do it; and, in fact, there is no chance to make progress anywhere, nowadays, without taking pains and trouble. You have given us one of the best illustrations I ever saw, of the possibilities of building up a home market; and I do believe that a convenient peddling-wagon, with a smart man to manage it, is going to prove the outlet for our great crops of honey. I don't quite understand, however, how a good article of linden honey, or a *good article* of California sage honey, has been the means of injuring your trade.

MRS. GLIDDEN AND HER BEES.

WHAT A REAL LOVE FOR A CHOSEN PURSUIT MAY ACCOMPLISH.

ONE pleasant morning, four years ago last spring, a lady came into my office, and, without any particular introduction, said she would like to talk with me a few moments about bees, if I was not otherwise engaged. She was about thirty-five years old, I should judge, and spoke in a pleasant, rapid manner that was quite captivating. I at once gave her attention, and she began to ask questions about bees, hives, etc.—knowing that I was much interested in bee-keeping, and had a few colonies. Somehow, I did not then find out how, she had got an idea that she could keep bees, and she was determined to try. She asked me several questions, and wished to know my opinion about the hive advertised by a Mrs. Cotton, of this State, and about her way of managing bees. I said to her that I thought she did not want the Cotton hive, book, or any thing else from that source; but I advised her to correspond with my good friend Mason, of Mechanic Falls; and if she was fully determined to start an apiary, to start right by getting a Langstroth frame hive, all fitted with sections, etc., and purchase her bees of Brother Mason. She has since thanked me for "starting her right," and giving her good advice. I may say here, before proceeding further, that I had for some years known the lady by sight, and knew her husband as for some time a resident of this city, an estimable man, a carpenter and builder by occupation, who owns two houses here, and whose home is at the corner of Green and Chapel Streets. Well, I loaned Mrs. Glidden some books and bee-journals, and, after a pleasant chat of half an hour, she left.

Soon after this call I learned that Mrs. Glidden had bought a colony of Italians of Brother Mason, and had them safely located in one corner of her little garden. Then she commenced a regular course of reading in bee culture. She read every thing; and as the public library contained no books on the business of bee-keeping, I gladly loaned her from my own collection. In a surprisingly short space of time she had read and mastered Cook, Langstroth, the A B C book, King, Alley, and lately she has read Heddon, and—just think of it!—the whole of Huber. Besides these she has regularly read two or three bee-papers, and is now a subscriber to GLEANINGS, *The American Bee Journal*, and other papers; and she also carries on quite a correspondence with some of the leading bee-keepers in different parts of the country. But, as my good old father used to say, I am "getting ahead of my story." On the 4th of July of that year, the colony purchased of Brother Mason sent out a swarm, and this embraced her entire increase for that season. The two colonies were wintered out of doors, on their summer stands, being packed with leaves, and a tight shingled roof placed over each hive.

The second year, 1884, Mrs. Glidden devoted considerable time to dividing her colonies and rearing queens. This last she undertook because it was interesting, and she would rather rear them than to purchase and pay away money for them. She understood the business perfectly, and succeeded admirably. This year she increased her two colonies—which came through the winter strong—to twelve, making ten new colonies, by dividing. This work was carried on quite extensively, as will be seen, and perhaps some mistakes were made. It would not be strange if there were. She lost two colonies in August or September of that year from lack of stores, as she did not feed early enough in the season. That fall she went into winter quarters—on the summer stands, as before—with ten colonies. Five of these came through the winter, but in the spring of 1885 they were very weak. Mrs. Glidden understood feeding by this time, and they received attention, and built up strong during that season. She did not feed any in the fall; had little surplus honey; but the five colonies of spring had increased to ten strong heavy colonies by fall, and they were, as before, well packed for winter with a protection of leaves, and tight shingled roofs over each hive. Mr. Glidden, although a very busy man, had before this become much interested in the bees himself; and, being a carpenter, he had made all the hives needed, the sections, etc., during odd days in the winter season.

So far in her experience as a bee-keeper, Mrs. Glidden had received but little surplus honey. Indeed, she had not planned for much. Instead, she had been reading, studying, rearing queens, dividing, experimenting, and learning; all being done in a quiet, earnest, determined way, with no thought of being discouraged or giving up the business, or getting tired. She was bound to succeed, and she has.

Last spring Mrs. Glidden's ten colonies of bees were found to be in excellent, strong condition. This season they have just doubled, or increased to twenty. She gave away one colony to a friend, has sold four, and has an even fifteen colonies with which to go into winter quarters. They are a pretty sight, as they stand in uniform rows in the little garden at the corner of Green and Chapel Streets, this city; and many are the visitors Mrs. Glidden has had at her apiary during the past three years. The honey-record from this apiary the present season has been a total of about 1200 pounds. About 300 pounds of this has been box honey, the remainder extracted honey. In June, Mrs. Glidden purchased an extractor, and has used it freely. She has put up her extracted honey in neat one-pound glass jars, with her name on a label on each jar.

This honey she has placed on sale at the leading grocery stores in this city, and in the adjoining city of Hallowell, two miles distant, as well as in the city of Gardiner, six miles distant. From this it will be seen that Mrs. Glidden has a fine local market; and in placing the honey on sale she has made all the contracts ana done all the business herself. For comb honey she receives 20 cts. per pound; and for extracted, one shilling. In addition to her sales at the stores, many come to her house and purchase in large quantities, so that her honey has been in great demand this season, and there is sure to be a greater call for it next year, as this season the prejudice against extracted honey has been overcome, and she now has an assured sale for all she can produce. Her success has been most gratifying, but she deserves it all. Her intelligence, courage, and enthusiasm have the promise of sure reward. But, did you ever think, friend Root, that bees work faster and better, and store more honey for some than for others?

Mrs. Glidden is an earnest worker, and most esteemed member in the church to which she belongs; and she is also a member of Capital Grange, P. of H., this city, and all her brothers aud sisters of the Grange hold her in high esteem as a sister and a friend. Calling at her home a few evenings ago with my wife (she has three fine children, the eldest a young lady of sixteen, a pupil of Cony Academy), I asked her how she first came to be interested in bee-keeping. She replied, that she "always thought honey was nice," and that she "wanted to have some"—a woman's reason. It is nice, as we can attest, as a sample of comb honey made by her bees in June last is certainly the whitest, clearest, and finest-flavored honey I ever ate. SAMUEL L. BOARDMAN.

Augusta, Me., Nov. 11, 1886.

THE MERITS OF ALSIKE CLOVER.

WILL IT PAY FARMERS TO RAISE IT, WITHOUT ANY REFERENCE TO BEE-KEEPING AT ALL?

THE above heading suggests itself to me while reading an article from *The Farmer*, of St. Paul, Minn. The article has not a word in it in regard to alsike for bees. It simply speaks of its value for stock, and for raising seed to sell. As there are some new points in the subject, we make the following extract:

About 20 years ago I bought my first alsike clover seed, and sowed it alone on the south side of a hill. The season was dry, and it grew only about a foot high; and as it was said the first crop produced the seed, I cut it for seed and felt disappointed at getting so little that I was ready to pronounce it a humbug, and plowed it up the same fall. Some years afterward I saw a bushel of seed at the Dane County Fair, at Madison. I inquired of the owner, Mr. Woodward, how he liked it, and if it was a profitable crop. He said he got four bushels of seed per acre, and sold it at $10 per bushel; that the hay, after being hulled, was better than the best red-clover hay, and that his cattle ate it in preference to any other hay. I bought two bushels of the seed and sowed about one bushel to twelve acres, mixing one-third timothy, by measure, where I wanted it for pasture or hay, and about the same quantity of pure alsike where I wanted it for seed. It does not raise seed the same year it is sown, but, like red clover, the next year. I have sown it with wheat, barley, and oats. It does best with spring wheat or barley.

I hulled 110 bushels this year from 20 acres. I expect to get $7.00 per bushel, and I have at least 25 tons of good hay, after hulling, worth enough to pay all expenses of cutting and hulling. Some years ago I sold my whole crop on the Board of Trade in Chicago for $11.00 per bushel.

Mr. George Harding, of Waukesha, a breeder of Cotswold sheep and short-horn cattle, and one of Wisconsin's most wide-awake farmers, showed me a small field of one of his neighbors that he said produced seven bushels of alsike seed per acre, and that he sold it in Milwaukee for $12.00 per bushel. I have 80 acres in alsike; and so long as it pays me as well as it has done, I will sow it.

The first crop the next year after sowing is the seed crop. It can be cut for seed for several years. It is not a biennial plant like red clover, but a perennial. It has one tap root with many branches, and does not heave up by frost, like red clover, which has but one tap root.

I prefer it to red clover for several reasons. When sown with timothy it matures with timothy. (Medium red clover matures before timothy is fit to cut.) I cut about the 10th to 15th of July; red clover should be cut (here) about the 20th of June. Alsike is not easily injured by dew or light rains after being cut. It has none of the "fuzz" that red clover has, making it so unpleasant to handle as hay or seed. The stem is not so coarse nor so hollow, and has more branches, leaves, and blossoms. The blossom is of a pink color. Red clover must be cut when we are in the busiest time working our corn. Alsike is cut after corn work is over. This is of great advantage in a corn region.

Alsike makes a good fall pasture after the seed is cut. My stock will eat it in preference to red clover, timothy, or blue grass. Blue grass, or, as it is often called in this country, June grass, is a good early and late grass, but in midsummer it dries up; and had it not been for clover we should have been badly off for pasture this dry year.

HON. MATT. ANDERSON, Dane Co., Wis.

PRESENTING BEE CULTURE IN TOO "ROSY" COLORS.

WHAT IS THE OUTLOOK?

BELOW we have made a few extracts from the reply of the editor of the *Canadian Bee Journal* to an article headed, "What Is the Outlook?" The writer of the article spoke of the recent bad seasons and the low prices, and the general discouragement of many bee-keepers. The editor answers:

We will not for one moment question the assertion that bee-keeping may have keen painted "in its most rosy colors," possibly in some cases too much so; but almost any one will admit that there were good reasons for appropriating the "paint" to that purpose. Bee-keeping then *was* a business in which there was much profit and little loss—proportionally speaking. The principal trouble now seems to be the disposal of the crop at a fairly remunerative price. Bee-keeping is now down to a business level, while it formerly was a special pursuit; with extra advantages, of course there will be lots of bee-keepers disgusted, just as there were lots of store-keepers disgusted with *that* line when they found that "sitting on a nail-keg" in their store was not going to give them a living. Since bee-keeping has taken a legitimate stand amongst other branches in the commerce of the country, neither writers nor supply-dealers have to any extent painted it in "colors" others than of which it was deserving. There are, even at the present price of honey, large profits in successful years, while in poorer years the profits are not so large. It must be admitted, that during the past four years there has not been much above an average yield; but "depression" is the cry in almost every department of the commerce of the country, and bee-keepers can not always expect unexceptional favors. The little couplet which is often used with reference to poets is applicable as well to bee-keepers:

"Not every man can be a poet,
No more'n a sheep can be a goat."

I would especially emphasize the point about sitting on a nail-keg. There may be seasons and opportunities when a man can lay up money and sit still, and rest a great part of the time; but such things do not occur often, nor do they last long, and I think it is a wise provision of Providence that such is the case. The world is full of tradesmen who can not make a living, or who succeed in making only a very poor living; and I believe it is often the case, that the sole reason of this is, because they don't get up and make things go. It has been many times intimated, that the supply-dealers are the lucky ones in our chosen pursuit; but I tell you, my friends, there are about as many supply-dealers who fail, as there are honey-raisers. To succeed in any industry, one must not only work all day, but he must use his brains in the night time, and after the labors of the day are past. He must carve out his fortune by hard work and hard knocks. When seasons are poor and prices are low, he must economize and cut down out-goes, and he must learn to do it until he comes clear down to hard-pan. When he learns to weather the storms he will probably be ready to make hay when the sun shines. Sitting on a nail-keg will never build up a business anywhere.

A MODEL KITCHEN.

PROF. COOK TELLS US SOMETHING ABOUT THE CONVENIENCES OF THEIR OWN KITCHEN.

I READ with much interest Mr. Terry's description of his bath-tub. Such articles are *good seed*, which may not lodge in soil to always take root; but when they do produce they bear such excellent fruit that they are always opportune.

Now, Mr. Editor, our house was already built, and there was no available room over the kitchen or elsewhere to be used exclusively as a bath-room. I presume there are many other such homes. We —wife and I—are *full* partners, and we concluded to make our kitchen the bath-room, especially as we could at the same time greatly increase its conveniencies in other respects. Let me say, that I married one of those very girls that Mrs. Chaddock writes about. This wife, except when we have company, does her own housework. She prefers this. The work is far better and more economically done. We all enjoy having our home wholly to ourselves, except in times of company; and then, again, it gives opportunity to give our two children useful work. Katie, only eleven years old, makes all of one kind of our bread, and most of the cake. By the way, she took the premium on bread at our fair. The children do their own room work, wash the dishes—and, more, are most happy doing this, "*if we can only be without* the *girl*."

Thus it is that we desire to have our kitchen as pleasant and as neat, and the *most convenient* room in the house. The room is 12 x 14 feet, has windows on both ends, is neatly carpeted, and we think it is as cozy as need be. The bath-tub, which cost us twelve dollars, is at one end of the room, in front of two windows. I cased it about with oak, neatly matched, and covered all with a hinged cover of beautiful cherry wood, which shows nature's beautiful graining to perfection. The cover of this is held up by a catch when we wish it up. The escape-pipe runs to the same drain which carries off the house-slops, and thus this drain is flushed every time the tub is used, and, indeed, every time we wash, as will be seen. It seems to me that every house should have such a drain if possible. Health and convenience demand it. Neatness certainly emphasizes the argument; for what is more repellent than the horrible cess-pools seen back of so many country homes? When the cover is raised, a board across the bath-tub lengthwise makes just the right wash-tub bench. Each tub has a hole through the bottom, with a rubber-stop; so to empty the tubs on washday, one has only to raise or withdraw the stop. As a rubber hose may be made to connect from the cistern pump, which is a force-pump, to tubs on bath-tub, or to boiler on the stove, it will be seen that a whole washing may be done without lifting any water except to empty the boiler. When the cover of the bath-tub is down it makes an excellent kitchen table, and also serves as an ironing-table. If desired, we may stop right here. But *we* have added about $50.00 more, and have added hot-water works. As the tank in the bedroom above, which serves as a stand, holds about three barrels, and as I each morning fill this, which takes about fifty strokes of the pump, wife never has to pump or carry any water to do her work. What better planning can be done in any home, than planning to save work for the *queen* of the home?

Each door of the kitchen has an inside lock, and all the windows have shades, and so the use of the bath-tub may be as private as though it were kept in a special room.

One more convenience that gives us nearly as much satisfaction as does the bath-tub, is a frame to hang clothes on, which is fixed to the side of the room opposite the sink, stove, and wood-shed door. This is simply a light square frame like a slate frame, made of ash, and is four by seven feet in dimensions. A cross-bar in the center strengthens this frame. Through the end and center bars, holes are bored, and a common clothes-line is stretched lengthwise across the frame every five inches. This is a "*roped*" frame, not a "wired" one. Two strap hinges fasten the bottom of the end-bars to the wall, about four or five feet from the floor, while a small chain is fastened to the top of the end-bar, and then passes over a small pulley screwed into the wall just above where the upper end of the center-bar will be when the frame is close against the wall. By use of this chain the clothes-bar can be drawn close against the wall, or let down at any angle. Thus this is always ready for clothes, and is always out of the way when not needed. It is a *suspended*, if not a "reversible frame," for the *kitchen*.

If this article shall induce such action as will lessen the burden of any wife and mother, how glad I shall be that I wrote it! It is near Christmas; and what a nice Christmas present would such arrangements be for many a loving wife, whose work is hard!

I forgot to say, that a neat wood-box stands opposite the bath-tub, which *Bertie* is expected to keep full.

A. J. COOK.

Agricultural College, Mich.

Friend Cook, I have got you and friend Terry on the very topic that pleases me; namely, planning for the *queens* of our *homes*. If there is any department in life where we need kind hearts and earnest thought, it is in lessening the labors of the home. My wife, like Mrs. Cook, has always had a preference for doing her own work; and I tell you, friends, we can afford to spend quite a little money in the way of making fuel, light, water, and air, convenient in the kitchen rather than to go to the expense of hiring a girl to do the housework. In our own home we are now talking about making steam pump the water, and warm it at the same time, by means of one of the cheap injectors now in the market. I tell you, there is no Christmas present that can be studied up that will begin to compare with household conveniences that are *real helps* to the good wife, and not a hindrance.

QUEENS IN TRAPS.

HOW LONG WILL A QUEEN LIVE IN THE UPSTAIRS PART OF THE ALLEY DRONE-TRAP?

AFTER Ernest told of his talk with me about queens of swarming colonies being caught in Alley's drone-traps, Mr. Alley wrote me that Ernest was in error as to the length of time a queen would stay in the trap. I replied that we had in mind a queen remaining and living in the trap, and said, "A queen could hardly live 2 hours in the trap, if the hot sun were shining on it." To this he replied, "Allow me to say, friend M., that you are giving your opinion about that you know nothing about, when you say, 'A queen could hardly live 2 hours in the trap, if the hot sun were shining on it.' I say, the queen will live several weeks in the trap, sun or no sun."

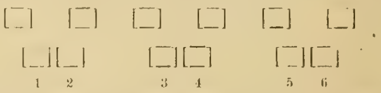
My first thought was, "Yes, I do know what I am talking about, for haven't I had them die in the hot sun?" But, come to think of it, I don't know that I ever did have one die in the sun, where the bees had access to her, but only under a glass tumbler, which would be much hotter than in a trap where the air would have free circulation. I presume Mr. Alley knows what he is talking about, from actual experience; and if so, it is quite important to know the fact, for all that is necessary will be to shut the little opening left for the queen to return to the hive, and then the trap can be looked at once a week. Is there any advantage in any case in having the trap so arranged as to allow the return of the queen into the hive?

BALLING QUEENS.

Referring to the discussion on page 853, I may say I have had considerable experience as to bees balling their own queen. In the spring I go through all my hives, and see whether queens are clipped; and if any are not clipped, I clip them. If, after clipping, a queen is accidentally dropped on the top of the frames so as to fall on the bottom-board at the entrance of the hive, she is very likely balled; and if the hive is at once closed up she may be released, but is sometimes killed. If a queen is placed on one of the combs, right among the bees, she is not likely to be molested. Sometimes, however, on opening a hive the first I see of a queen is to find her balled before I have touched her. In such case, if I close up the hive immediately, and do not open it again for several hours, I am pretty sure to find her all right. Is it not possible that, in this case, the bees ball their queen for the sake of protecting her?

SPACING HIVES.

You suggest, friend Root, that many queens are lost because hives are exactly alike, and too close together. The remedy in such case would be to move the hives further apart. Let me suggest, that a better remedy is to put the hives nearer together —that is, move every alternate hive close to its neighbor. Suppose, for example, 6 hives stand in a row, each hive 18 inches in width, and a space of 11 inches between each two hives. In such case there is danger of bees getting into the wrong hive, except the hive at each end, allowing that there are no trees or other objects by which the location of the hive may be marked. Now move the second hive within two inches of the 1st; the 4th within two inches of the 3d; and the 6th within two inches of the 5th, and you have the hives in pairs, with a space of 20 inches between the pairs.



In the above, the upper row shows the hives before moving, 11 inches apart. The lower row shows them after each alternate hive has been moved within 2 inches of its neighbor, leaving the different pairs 20 inches apart. As before suggested, in the upper row Nos. 1 and 6 appear different from all the others, and no bee of 1 or 6 is likely to get into any other hive; neither is a bee of any other hive likely to get into 1 or 6. But as between the other four hives, there is nothing to distinguish the one from the other, except the difference in distance from side to side; and a bee accustomed to enter its hive at a certain spot will find another spot of exactly the same appearance by going 29 inches either to the right or the left. Generally speaking, that 29 inches is sufficient, but I believe not always; and if a young queen, on the return from her wedding-trip, were not able to identify her own hive where the distance between the hives is only 11 inches, the consequence might be disastrous. But in the lower row there is no danger of a bee mistaking the next hive for its own. A bee of No. 3, for instance, knows its hive as the left one of a pair; and at whatever point it is accustomed to enter its hive, it can find a point similar in appearance only by going a distance of 58 inches to No. 1, or to No. 5. An experience of years in thus placing hives in pairs convinces me that it is important and useful, allowing the hives to occupy much less ground without danger of bees entering wrong hives.

C. C. MILLER.

Marengo, Ill., Nov., 1886.

Our friend Mr. Alley has had a large experience with the trap bearing his name, and I suppose he ought to know whereof he speaks. I may be in error as to the length of time a queen will live confined in the upper part of the drone-trap. I stated in answer to you, that I *thought* the "queen would live four or five hours, possibly a day." As I could not say from experience, I so stated it. We had one queen die in the "upstairs" part of the cage where she was unable to make her escape. No one was on hand at the time the swarm issued; but the fact remains, that the queen was found dead in the upper part of the trap. I can not say just how long the queen was confined there before she died, but it could not have been over a day, and the probabilities are that she died in a few hours. In all other cases, when a swarm issued, when a trap was attached to the entrance, we were present, and the queen, if she did not get back into the hive, was put back before or after the swarm returned. I can not say, therefore, that the instance I have mentioned would be an exception to the general rule, or whether it might not occur more often. I will try to experiment upon this point next season. ERNEST.

Thanks for your suggestions, friend M. I have for a long time been aware that bees would not miss their location when two hives were close together; and the same idea was once extensively used by making two hives in one, with the entrances pointing in opposite directions. In this case the thickness of a single board is all that separates one hive from another. I believe this plan was abandoned, however, because it so often happened we wanted to move one hive away and leave the other in its place. The reason why the hexagonal apiary was planned for only one hive by itself was because I so often found it convenient to be able to walk clear around any hive. Since then, however, we have seen bees make mistakes so much in the hexagonal apiary, we feel like reconsidering this plan. Only yesterday, Nov. 24, it being a warm day, the bees started out of a good many of the hives, and in a great many places quite a little handful of bees were clustering on the side of some other hive where there was no entrance. After investigating a little I found they were mistaking it for their own hive, 14 feet away. Sometimes it does not do any harm for bees to get into the wrong hive during warm spells in winter; but there are times when it may not only result in balling queens, but in the loss of the queen. I should like to have the friends tell us how general it is to find the bees mistaking their location where hives are made exactly alike, as mentioned above.

SEPARATORS OR NO SEPARATORS.

FRIEND DOOLITTLE AGREES WITH THE A B C BOOK, THAT WE CAN NOT DISCARD SEPARATORS.

As the time has now come to begin preparations for another season, the matter of separators or no separators must come up for the decision of each one. Many claim, and have so claimed for the past four or five years, that separators are useless, and, wishing not to appear "wedded to my fixtures," I have tried dispensing with them in a part of my apiary, and actually found that I could, by taking great precaution, as to the hive being level, the foundation being fastened to the sides and top of the section securely, and by giving just the right amount of room, so that the bees would commence in all at once, get combs built true enough to crate, especially if care was taken in crating, so that the "fat" side of one section was placed next to the "lean" side of the one next to it; but when it came to the glassing of them, that was out of the question. To be sure, most markets do not desire glass on the honey; but as a few do, it makes it very handy to have our honey so we can glass it if we wish. While, as I said, I had succeeded by using much precaution in getting a fair job done without separators, yet I found that this same precaution cost me more than the separators; and that, unless I used that precaution, the loss by bulged and unevenly filled sections was still greater than the first. So I concluded that there was nothing gained in trying to dispense with separators, but, on the contrary, such a trial would be very likely to result in a loss, owing to the nicety of the work required. Again, I found that I must leave the case of sections on the hive till finished, before they were disturbed; for if I added more room, except by way of a full case, on the tiering-up plan, I was sure of getting the combs so badly bulged that I could do nothing with them, save to sell them as "chunk honey." This spoiled one of the best ideas I know of in bee-keeping; namely, the putting-on of a small amount of surplus room at first, and gradually increasing it as the bees became strong, until the full capacity of the hive was reached. I am confident that this one idea has had much to do with the success I have attained in producing comb honey; so if I dispensed with separators I lost quite a share of my success also, and all for the sake of trying to do something that somebody else said we must do; "for," said they, "separators are rapidly becoming things of the past." Once more, I could not take my sections off once a week, as I had formerly done, while the combs had a snowy whiteness, which gave my honey a good name in market, but must leave them on the hive till the nice white comb was all travel-stained by the bees; for as sure as I took a comb out and put an empty section in its place, the combs in the sections next to it would have their cells so lengthened that they could not be crated at all. Then each section must be filled with foundation, if I would succeed, no matter how short I was of cash to purchase it. To be sure, I did succeed tolerably well by putting strips of foundation two inches wide in the two outside tier of sections; then 1½ inches wide in the next two tier inside of them, then one inch wide next; and in the center, two tier foundation, only ½ inch wide; but all this required a nicety that was much greater than the use of separators demanded. From the above it will be seen that I have given the non-separator business a fair trial, and was at last driven to the conclusion that, for me, separators are an actual necessity, if I would secure the most comb honey in the best marketable shape.

Not long ago I was reading, when (in 1881) the question was asked through one of our most prominent bee-papers, "Will all bee-keepers agree that it is more profitable to dispense with them (separators) than to keep them?" to which one of our noted writers replied, "It is not at all likely that *all* bee-keepers will, as some are so wedded to their fixtures and methods that it would be almost impossible to induce them to even *try* some better method;" and yet, if I am correctly informed, that noted writer has left that "better method" (non-separators) and gone back to using separators again. Would it not have been just as well to have known for a certainty of that "better method" before such a "hue and cry" was raised against one of the best combinations (wide frames with separators) which we have in the line of apicultural helps. Some have thought that separators cost them considerable of their crop of honey;

but from careful observation for the past 14 years, I fail to find any thing pointing toward such a conclusion; but if any really feel that such is the case, Mr. Betsinger's new wire-cloth separators will remove all such objections.

Why I have written this is because I believe we have been trying to make a move in the wrong direction by this non-separator business; and I hope all will take an interest in seeing that good prices in our markets can be maintained only by putting upon it that which is as nearly perfect as possible. G. M. DOOLITTLE.

Borodino, N. Y.

"THERE IS LOTS OF HUMAN NATURE IN FOLKS."

MRS. CHADDOCK'S OPINION OF HUMANITY.

YES, that is so. We like people better after getting acquainted—*with some exceptions.* I know people like me a good deal better than they used to. Twenty-three years ago I was a schoolteacher and book-agent combined, and folks didn't seem to like me very well. Their affection for me was of the mild type that doesn't make a man lay down his life for a friend. In company with a girl-friend I canvassed most of the time during vacation, and I thought then that folks were *unnecessarily cool* toward book-agents, though at some houses we were *too* warmly received—the women giving us a piece of their minds, and one man said he would set the dogs on us if we came inside his yard. I lived through it all. About fifteen years ago people began coming to me to apologize for the way they talked to me when I used to sell books, and they keep on coming. Only last week I met a woman in a store, and she said she wanted a little private conversation with me; and when we were alone she said, "I want to ask your pardon for the way I treated you over twenty years ago when you came to our house selling books. I was ashamed of it as soon as you were gone, and I've been ashamed ever since, and have often thought of telling you so, but could never get up courage enough. I hope you will forgive me."

"I do," said I; "I forgave you long ago."

"Oh! then perhaps you did not care much for what I said," said she.

"Yes, I did," said I; "I cared a great deal; so much, that I laid awake and cried all night about it."

"Well, I'm sorry," said she; "and I didn't mean what I said; I just got started, and you seemed so astonished that I felt encouraged, and said all I thought, and a good deal more."

But the man with the dogs made the most abject apology of all. He waited only ten years, and he was humble enough to eat fried grass. I forgave him. Then about two years ago a woman said to me that she served me a mean trick once. She said that once when I wanted their school, and her husband was school-director, and was going to hire me, she would not let him; she said she guessed she pretty nearly told him a lie to keep him from hiring me, and she had felt sorry about it almost ever since. One thing that made her sorry was, that the teacher they hired was a *poor excuse*, and they turned him off, and the children had to stay at home all the rest of the winter. Then she said she felt bad about the way she had treated me, and sent her husband the next winter to hire me; but I had a school somewhere else, and she had not seen me very often since. I told her that I wished she had not told me. She said she *had* to tell me; that she had got religion a short time before, and she was going to own up to everybody all the mean things she had ever done to them. There's lots of human nature in folks; and if we all live long enough every thing will be straightened out, I suppose; but with my impatient disposition I can't see why folks will go on, year after year, with their consciences on the rack, when a few words will end it all. And I am very sure that I like folks better than I used to. I like all the folks in the world better, and I take more time to get acquainted with the people I meet. When I used to work in the fields all day, and do my washing and baking after night, and before daylight, I was cross and selfish, and it tired me to talk to folks. I thought I was smarter than they, and that they were not worth wasting time on. But I've found out, of late years, since I've had time to listen, that almost everybody knows something, "specially beekeepers," and it keeps me busy trimming my lamp and pouring in oil, not to be entirely extinguished by some of them. MAHALA B. CHADDOCK.

Vermont, Ill.

It seems to me that one moral to your little story, my good friend, is, that book-agents are not needed in any community; and I do not believe I would ever encourage any kind of business which brought the ill will of so many good people, then the necessity of such apologies as you mention would have been spared. It is well enough to peddle honey that you raised at your own home; but book-agents and book-peddlers are so universally recognized as nuisances that it seems to me that we had better give up that kind of business.

CALIFORNIA.

BY ONE WHO IS ENTHUSIASTIC OVER THE RESOURCES OF THE COUNTRY.

FRIEND ROOT:—Should you come to Pasadena, Cal., in early spring, as I did, you would have to confess that neither tongue nor pen could give you an idea of the loveliness of the place. I left Gambier, O., April 5. There was six inches of snow on the ground; weather was cold, and was snowing hard. We were snowed in at Chicago for 5 hours the night I left home. After eight days of varied cool and snowy weather, imagine, if you can, what it is to suddenly drop down, as it were, off the mountains into the San Gabriel Valley one afternoon, where every thing is green, and see the orange-trees hanging laden with golden fruit, with their dark-green foliage, and their waxy blossoms filling the air with their fragrance, mingled with that of the calla-lilies.

I came here to go into the bee-business in Southern California. I have not done much at it yet—not because I did not find that business as good as I expected, but because I found other businesses so much better than I expected. Nice white-sage extracted honey is retailing here at 5 cts. per lb.; white 1-lb. sections are selling at 10 cts. Bees are almost idle now, as this is their vacation, with their hives so full and heavy as to be not easily lifted.

Where the honey has not been extracted, I believe this has been considered a very good honey year, although I have been too busy to gather much in regard to the business. I believe San Diego is the great honey-region of California, while Pasadena excels in fruit and beautiful homes.

I have worked up to date, since I have been in Pasadena, 157 days. I have not worked one day for less than $3.00 per day, and I am at present getting $3.50 per day in gold, every Saturday night. My boss won't employ any man who uses tobacco, drinks liquor, or swears, so, you see, I have good company to work in, and might be expected to have a good time. I am a journeyman carpenter. I believe all occupations pertaining to the construction of houses, or building up a city, have paid as well as carpenter's work.

Now, just one word about Pasadena. It is a new place, and one can't find such a thing as a dilapidated house, barn, or fence. The buildings are all new, and some are of the finest architecture. The buildings are mostly wooden—Oregon pine for the frame, and California redwood for finishing. Lumber can be obtained here of almost any length, up to 60 or 80 ft. Selected redwood makes the finest finish of any soft wood I ever saw.

There are some people who come here and don't like the place (chronic growlers), and I do believe there are many who, if transported to heaven, would not like it any better, because the associations would not be the class they were used to.

I used to hear of an occasional earthquake in California; but after spending 7 months here, where every day is as calm as June, and reading about the awful earthquakes and cyclones and floods they are having in the East and South, I just thank God that I am in California, and wish that many of the suffering ones were here too. Let me just say, that I am not interested, more than any other good citizen.

Pasadena, Cal., Nov. 8, 1886. H. H. HILLIER.

THE HONEY-BOARD.

OLD-FOGY JUDGES.

I EXPERIENCE a great deal of trouble with honey-boards. I have the enameled cloth, but I want a board that will hold itself up so I can put on boxes for honey, holding 10 or 15 lbs. each, without foundation. Such packages sell much the best in this section. I have never used the zinc. Will that be the best thing I can get? I see in GLEANINGS, Oct. 15, page 814, something said about the Heddon and Tinker honey-boards. I should like to know where I can find a description of those boards. I take GLEANINGS, and have the A B C book. What do you use for a honey-board? I glued wooden strips on the top of some of my enameled cloths, ¼×½ inch, and ½ inch apart, that kept the cloth up all right, and worked first rate to cover the frames; but I can't use that to set my boxes on, that I can see. I could use the old wooden boards with holes through them; but I do not like them to remove from over the frames, for they are quite apt to take the frames along with them, with me. I should like to know what you would use if you were in my place. If zinc were to be used, I should think the bees would be likely to stick both to the boxes and frames, and when taken off would bend and spoil the zinc (perhaps not).

I must tell you of one of my experiments with the honey-boards. One of our best bee-keepers in this State uses the old-style honey-board in two pieces. The thought struck me, that if two were better than one, why four would not be better than two, so I had enough made to cover 12 hives; but I at last took the precaution to try but one at first, and that proved enough; so when I wanted to remove it to put on the cushions for winter I commenced and took off the first and then the second, and the third; but by this time there was a good deal of a rumpus, and off came the fourth, and with it, not all the bees in the hive, but enough to completely cover my hands and wrists; and when I got them shaken off, my hands looked as though they had got nicely pin-feathered, the stings were so thick; and I found more real sharp points in that experiment than in any other I ever made with bees. I can stand a dozen or so bee-stings; but when they come by the hundreds I can't say I like it very much.

I want to use those large boxes, for the reason that our people here in Vermont do not like to buy honey in such small packages as 1-lb. sections, or even 2-lb. Those who are able to buy honey at all, want it in from 5 to 20 lb. packages. They seem to feel as though they had got enough to last them over night, and it is so with other things they buy—sugar by the 100 lbs., flour by the barrel, beef by the 100 lbs., whole hog, etc. Our bee-men here who had their honey in such boxes as I mention, this year could not supply the demand, even at 20c. per lb.; while my honey, in clean white 1-lb. sections, went begging for a buyer at 15c., and then they would turn them over several times to see if every cell was perfect, and then take it, only for the reason they could get no other. Before leaving they were apt to ask if the comb was artificial or pure, and what I fed my bees on, etc.

MORE "BOODLE" IN RENDERING DECISIONS ON HONEY AT FAIRS.

I took two packing-cases, full of my best 1-lb. sections, to our county fair this fall. There were two other lots besides mine—one an old 15 or 20 lb. box with round holes in the sides, and pieces of glass tacked over those holes on the inside. I should judge it had been used a dozen times or more. The next lot was in a little later style. I stood at a little distance when the committee came around. They first came to the old box, looked it over carefully, took off the cover, smelled and tasted of it; did the same with the next lot, then came to mine, held a section up to the light to look through it; smelled it; made some low remarks to themselves, and passed on. The result was, the old box drew the first, and the next the second prize, and mine not noticed. I learned afterward that the committee were told that the comb in my sections was made by machinery, and was not made of beeswax either, and that they were filled with sugar that was fed to the bees.

I think now I shall get some of the old boxes my father used over 50 years ago, and have them filled ready for the county fair next fall; and I feel very much as though I should like to be present and stick the committee's noses into one of the old boxes up to their eyes, so they could see and smell at the same time.

The 1-lb. of bees I got from you last spring did first rate, and are now as good a swarm as I have.

Moscow, Vt., Nov. 15, 1886. J. W. SMITH.

Why, friend S., your letter is really refreshing. We have not had any thing like it for a long time; but if you will take my advice you will not go back to those old-fashioned things in too much of a hurry. By the time you would get rigged with your honey-boards and big boxes, the committee would get educated, or they would have a different one, and then you would be left out in the cold again. Why did you not walk up to that committee and tell them that the honey was just as pure and good as that in the old boxes? Show them an A B C book, and some copies of the bee-journals.—If your people want a 20-lb. box, why not give them a case full of sections? It will be almost as cheap for you, and I am quite certain that very soon they would outsell the old traps you mention.—You will find pictures of the honey-boards on pages 47, 121, and 771, for the year 1885, and 373 and 613, for the past year. I think the honey-boards made of strips of wood, alternating with strips of zinc, will be the best thing for your purpose. These are made especially to avoid the bridge-combs that attach them to the brood-frames and honey-boxes. The hives we send out don't need any honey-board at all; and if anybody wants a whole box of honey you can sell the case of sections with it, just as it comes off from the hive; and I think any tidy housewife will prefer a box of honey so arranged that each comb can be lifted out without dripping and daubing.

SUGGESTIONS IN REGARD TO FOUL BROOD.

THE PHENOL, OR CARBOLIC-ACID TREATMENT, AS TRIED BY ROBERT SPROULE, OF IRELAND.

DEAR SIR:—I am sorry to see, by GLEANINGS, that you have foul brood in your apiary; and as you do not seem to have any faith in the phenol treatment, I trust you will accord me space to say a few words in its favor, premising that my knowledge of the disease is limited to what might be gained by observations with the naked eye, and while endeavoring to eradicate it in an apiary of half a dozen colonies. The scientific aspect of the question I leave to those whose skill and training enable them to investigate it, and I accept their statements, in so far as they agree with my own experience, as being made in good faith for the general good.

Up to a few years ago it was generally supposed that there were two distinct forms of foul brood—the "virulent" and the "mild," the difference being that the first was difficult if not impossible to cure, while the second gave way to systematic treatment, and sometimes disappeared without any special treatment. Beyond this, nothing was known of the disease; and as to a remedy for the "virulent" form, I say, without hesitation, that there was none, the alleged cures by means of salicylic acid to the contrary notwithstanding. Recent discoveries have enabled us to distinguish between both forms of the disease, and to cure one almost as easily as the other.

I first saw foul brood about eight years ago, when it appeared in my apiary in a colony of Ligurian bees, to which I mangaged to confine it by spraying with salcylic-acid solution and other treatment until the following summer, by which time every colony I had was infected. For the next three or four years I was unremitting in my efforts to stamp out the disease, but without success. During all this time my bees never swarmed, and I was obliged to destroy dozens of combs by burying them in the earth, and all to no purpose. The bees formed queen-cells, but the contained grubs died immediately after sealing over, and I was obliged, each season, to buy swarms and driven bees in order to keep up my stock. Matters went on in this way until the autumn of 1882, when a friend suggested carbolic acid as being worth a trial; and as I could not be more unsuccessful with it than with salicylic acid, I determined to act on the suggestion. At this time I had four colonies, made up of driven bees hived on full sheets of comb foundation, and fed with sugar syrup, in which salicylic-acid solution was mixed. As I had not made up my mind as to the best way to give the carbolic acid to the bees, my intention was to leave them alone until the following spring, by which time I would have fixed on a plan of operations.

The next step was to find out the make of carbolic acid best suited for my purpose; and after a good many samples had been tried I concluded that what is known here as "Calvert's carbolic crystals, No. 1, B. P.," would be most easily administered, as it was soluble, even in cold water; and its taste, when diluted and mixed in syrup, was not disagreeable. I prepared it for use by melting the contents of an ounce bottle and pouring into a quart of cold water, which was shaken up until the crystals were dissolved, after which the bottle was corked, and I considered the solution ready for use. The following spring I took a look at my four colonies, and found them badly diseased. Brood-rearing seemed to have been going on very briskly, and the bees were much reduced in numbers. There were very few, if any, healthy cells in the brood combs; and after a little consideration I concluded that the remaining bees were not worth saving, and I determined to give up keeping bees for that season, and to make a fresh start the following one, with new hives and other gear, so as to avoid any further risk of disease. I took no trouble with the diseased colonies beyond placing an inverted tumbler filled with syrup, in which, for curiosity's sake, I mixed some carbolic solution near the hives. The bees took the medicated syrup readily, and the tumbler was refilled as required. Not being at home during the daytime I saw very little of the bees, and, in point of fact, I took no interest in them; and so when, on my arrival in the evening, I was told that "the bees were flying very strongly to-day," I merely smiled, with the air of one for whom the pleasures of bee-keeping had long since passed away, like all other pleasures of our imperfect existence. This state of indifference continued till one warm morning about the end of May, when I happened to pass in front of the hives just before leaving for the city, and was astonished at the activity of the bees. At the first opportunity afterward I opened and examined the hives, and found that all traces of foul brood had disappeared. The combs had been cleaned out, and were now filled with healthy brood and drone-brood capped. Before the end of June each colony gave a swarm, and, better still, the queens hatched out in every case. Those very satisfactory results seemed to me so important that I lost no time in placing the facts before the greatest living authority on scientific bee culture, Mr. F. Cheshire, who said the treatment was quite new to him. He promised to make experiments with the carbolic-acid remedy, and, if successful, to give the results to the bee-keeping world. As a test, a diseased colony was selected and marked for identification, after which it was placed in Mr. Cheshire's care. A couple of months afterward it was examined by competent judges, who pronounced it healthy, and without the slightest trace of foul brood. Mr. Cheshire gave a very minute description of this disease, as well as directions for its cure, in a paper which he read at a meeting of the British Bee Association; and this paper, which caused a good deal of sensation at the time, was reproduced in several of the American bee-papers. In the course of his investigations Mr. Cheshire discovered that the statement, so often and so confidently made, that the queen does not carry the infection, is misleading, as he found the bacillus of foul brood in the ovaries of several of the queens he dissected in the course of his investigations. To my mind, this discovery proves that, to destroy foul brood in a colony having one of these diseased queens, her removal and the substitution of a healthy queen should be the first step, after which the rest is easy.

To return to my own case: In the month of July I gave Ligurian queens to three of the four colonies, the other having a black queen just beginning to lay. All went merry as a marriage-bell until the time came to feed up for the winter, when I was concerned to find that the Ligurian bees would not touch syrup if it contained the least trace of carbolic acid, while the blacks took it without hesitation. In the hope of compelling them to take it, I allowed them to run almost to the starvation-point; but in the end I was obliged to give them unmedicated syrup, which they took freely. About the middle of November I examined the four colonies, and found the Ligurians had foul brood badly, and were very weak, while the blacks were strong and perfectly healthy, and without the least unpleasant smell. In the following February one of the Ligurian colonies was dead, while the others were reduced to a mere handful of bees; and as they were not amenable to remedial treatment, I allowed them to die out too, after which I sprayed the combs with carbolic solution, and disinfected the hives with the apparatus I described a short time since in GLEANINGS. The black colony came out of winter quarters strong in bees, and since then I have not had any trace of foul brood in my apiary. I attribute the outbreak of the disease in the Ligurian colonies to my not having disinfected the hives, which were those in which diseased colonies had previously wintered.

The foregoing account is written from memory, and on that account may seem open to objection. When I began treating my bees for the disease with salicylic acid I kept an accurate note of every thing I did; but three years of unvarying failure so discouraged me that I looked on taking notes as pure waste of ink, not to speak of time and paper. Besides, when I began the carbolic-acid treatment I had no hope of being successful, and consequently took very little interest in the matter.

My recommendations to you would be remove the queens of all your infected colonies, and to hand them over for instant execution to the common hangman. In their places I would introduce queens reared in some apiary free from any suspicion of disease. A number of outdoor feeders should be filled with honey or syrup; and when the bees begin to feed freely, phenol (carbolic acid) should be added in small but increasing doses, until the dose is as strong as the bees will take it. I recommend outdoor feeding, because I have found that bees will often take feed that way when they would not touch it if offered to them in the hives. If this treatment is pursued systematically, I venture to say that, before next summer, you will be rid of foul brood.

Your plan of disinfecting hives by means of a jet of high-pressure steam, I think a capital one, without prejudice to my own apparatus for the same purpose which was intended for that large and deserving class of bee-keepers who don't happen to have steam-boilers at command.

Nov., 1886. ROBERT SPROULE.

Richmond Road, Fairview, Co. Dublin, Ireland.

Thanks, friend Sproule, for the results of your experiments with the phenol, or carbolic-acid, treatment. From our experience with the phase of the disease which has visited us, we can not think that the queen gives the disease. Of the sixty cases of foul brood in our apiary, her majesty was retained in all, after we had treated the colonies as we have before described. In not one has the disease reappeared. Surely, then, the queen would have given the disease, at least in a few instances, if it were possible. It may be, that the most advanced stages of foul brood might affect the queen, for we have not allowed a colony to be diseased long in our apiary.

THE NEW HEDDON HIVE.

FRIEND HUTCHINSON,S REPORT IN REGARD TO IT.

I PRESUME many will be pleased to know what I think of the new Heddon hive, now that I have used it two years. I think of it exactly as I did when Mr. Heddon first explained to me its construction and advantages. I lay no claims to superior wisdom; but when a man has studied and practiced bee culture, working with his whole heart in the business, and with wits sharpened by the fact that he *must* succeed or wife and babies will go hungry or cold; I say, when a man has worked this way for ten years, as I have done, he can form a very nearly correct opinion of any new feature in bee-keeping without even trying it. There are, however, "weak spots" in the best of inventions, defects that even the brightest and most experienced fail to discern, and that nothing short of actual trial will point out. It was these "weak spots" that I feared in the "new hive;" that I have watched for with the closest of scrutiny; and the nearest approach to one that I have found is the use of compression for holding the frames in position when inverted. As I learned how to manage, however, I had less and less trouble, and I think I shall have none hereafter.

I find that inverting will do all that has been claimed for it—secure frames full of combs; clear the brood-nest of honey; hasten the completion of sections, enable us to rear large quantities of brood in a comparatively small hive, and to choose whether we shall have brood-chambers full of honey at the end of the season, or the opposite.

I have learned, though, that alternating the horizontal sections of the hive will accomplish nearly or quite as much as inverting; and after the first inversion has caused the bees to completely fill the frames, but little if any inverting will be needed.

After the frames are completely filled with comb, the peculiar construction of the hive enables us to manipulate hives instead of frames; and perhaps my readers will not be surprised when I say that I value this feature more than I do its invertibility it is the grand function of the hive.

I worked 50 colonies the past season for comb honey. One-fourth of them were in the "new hive," and most of the swarms were hived in it. I secured 100 lbs. of surplus, per colony, from *clover alone*. I am aware that it is the *bees* that gather the honey. I know we have been told repeatedly that a colony of bees will store as much honey in a nail-keg as in any hive; but in all seriousness, I should like to ask, is this assertion *true?* When coming home from the convention at Indianapolis I stopped off and made Mr. Heddon a short visit; and among the many things we talked over was this one of the influence that the hive may be made to exert upon the energy of the workers. I did not remember it, but Mr. Heddon thought he had, within the last three years, written upon this topic under the heading of

PRESENT CONDITION.

If Mr. Heddon did write upon the subject, I think but little attention was paid to it; at least, I knew that, when he mentioned it, it struck me as a new idea. I consider it well worthy of consideration, and will do my best to illustrate it.

We have all noticed with what energy a newly hived swarm works; the "present condition" is different from what it was in the old hive. Let a full case of finished or nearly finished sections be removed from a hive, and an empty case be put in its place, and the bees are sometimes quite slow in making a start in the empty case; if, instead of removing the case of nearly finished sections, it is raised up and an empty one placed between it and the hive, the "present condition" is such that the bees work with renewed energy to fill the newly added case, and thus connect the upper one with their brood-nest. Mr. Heddon told me, that, what first called his attention to this subject, was that, when breeding for qualities in bees, he found there were two different causes for good work. One (the one he wanted to breed from) was a fixed characteristic of the variety; and the other was an energy resulting from proper "present conditions." With an extremely tall hive, top-storing would not be a success; neither would side-storing be profitable with a very shallow hive, because the "present conditions" would not be favorable to success in either case. Mr. Shuck says, in his circular, that his attention was first directed to invertible hives by accident. A colony of bees, although strong in numbers, refused to enter the honey-boxes. The honey-board holding the boxes was removed, when it was found that the combs were built diagonally, and the hive was inverted for the purpose of putting the combs into proper shape. Just then he was called away for the day; the honey-board with the boxes was hastily placed on the bottoms of the hive (temporarily, as he thought), and the cover put on the boxes. On inspecting the hives at night the boxes were found to be full of bees; honey-making went on apace, and the strength of the colony increased, so that they stored 85 lbs. of honey after the first set of boxes were taken off. This well illustrates what a change of "present condition" can do. Re-arranging or interchanging the parts of a hive often starts *new determinations* in the bees. Under the head of "present condition" it would be proper to consider the right amount of brood and honey in proper shape, and this is much governed by the depth, size, length, and width of the hive. The kind of communications between the cases would also come under this head.

In my opinion, this question is a very important one, and well worthy of consideration. In a short article like this I can do little more than touch upon it; but I trust I have said enough to set my brother bee-keepers to considering whether the style of hive used may not be made to have a bearing upon the amount of honey stored by the bees.

Rogersville, Mich. **W. Z. Hutchinson.**

I agree with you, friend H., in regard to what you are pleased to term "present condition." I have seen a new swarm cluster on the outside of the hive, and refuse to go near it for several days, in the very height of the honey season. Sometimes I have driven them in and up into the boxes by means of a smoker; and when they once got started to work they would gather enormous quantities of honey in a very short time. Now, it is not new swarms only, but, a good many times, powerful colonies, that work very little, or do only about half what they might do, if they felt like it. If there is any thing we can do in the arrangement of hives to start up this latent energy, by all means let us do it. I am very glad indeed that you begin to think that reversing is not really necessary after the combs are once filled out clear to the bottom-bars. It will save a great deal of complication and machinery in making hives and frames. Now, then, how many others have found out that alternating answers nearly or quite as well as inverting?

BEE-LEGISLATION.

THE SUBJECT FROM ANOTHER POINT OF VIEW.

I DO not doubt that most bee-keepers are willing to believe, with Dr. Miller, that some kind of legislation directed toward the protection of the interests of bee-keeping would be a good thing. Class legislation is usually a good thing for those in whose favor such legislation is done. But if the professional bee-keeper is to be protected by law against the amateur, why not protect the creameries against the farmers who make butter in a small way, sometimes much to the detriment of prices? If we apply this principle of special legislation to any one business, let us apply it to all. When one man is "first in the field," and has built up a thriving grocery trade, let us keep all other grocers at a respectful distance. The first comer has invested thousands of dollars, perhaps, in buildings, stock, and "fixtures," and other grocers in his vicinity might render these totally worthless on his hands. The same is true of almost any line of business. The mass of humanity will not stand aside to let the favored few carry on the business of the world. Few men would be willing to accept the theory that government has the right to forbid a citizen following whatever honest occupation he may choose. To me it is a self-evident truth, that every man should have an equal chance with his neighbor in the struggle for existence.

I have kept bees for three years in the town of Denison. The locality is far better than the open country, for the streets and commons are covered with white clover, and nearly every lot is white with fruit-blossoms until late in the spring. I was first in the field, but I do not think myself any more entitled to these privileges than Mr. S., who last spring brought three times as many colonies into town as I have, and located them less than two blocks away. I believe he has as much moral right in the territory as I have; and I further believe that any law that would exclude him from keeping bees in the town, or that would convey to me the right of territory, would be both wrong and unconstitutional.

Next spring my bees will be sent to my farm, four miles from town. What justice would there be in a law that gave me control, not only of my own farm, but also of that of Mr. Brown, my nearest neighbor? If he keeps a few colonies only, they will not interfere with my business; and if he keeps many colonies they will be unprofitable to him unless he joins with me in the cultivation of crops that will furnish flowers for the bees. I certainly should resent any law that would sell to him any rights whatever in regard to my farm.

I believe the good doctor is joking about this whole matter of bee-legislation. He has baited his hook for "suckers," and caught one at the first cast, much to his edification, no doubt. If he is really in earnest, and proposes by such laws to keep out the small producers who regularly knock the bottom out of the local markets every year, I should be slow to fall in with his project, for these "small producers" are, many of them, the boys on the farms. They take this means of earning a few dollars in the fall when a little money is so much longed for by the average farmer-boy. I have been there, and know just how it is with the boys. Every year the papers are full of advice in regard to keeping the boys on the farm. Let us help keep them there by making bee-keepers of them. But whether they be boys, girls, men, or women, who swamp the markets with small lots of honey, let us do our best toward teaching them to obtain their honey in marketable shape, and prices will be safe. The dealers, too, are much to blame for this frequent demoralization of the local markets. They do not guage prices according to quality, as they do when buying butter and other farm produce; but if section honey is selling at 20 cts., they pay farmers 15 cts. for it in pails, whether the quality be good, bad, or indifferent. In such a market, clean new comb honey in pails ought to be worth at least 18 cts.; black and soiled comb, anywhere along the scale to zero.

Not long since, my grocer, who knows nothing about bees, lifted from a jar on his counter a piece of comb that had evidently been the home of half a dozen generations of baby-bees, with the remark that he rather liked comb honey that was "somewhat discolored." With a dull knife I cut crosswise of the cells and showed him the cocoons of the young bees. He was utterly astonished to learn what the silky material was, and now he not only refuses to eat such honey but also to buy it. Let us take the local dealers in hand. Z. T. HAWK.

Denison, Iowa, Nov. 22, 1886.

Friend H., after the article from friend Miller had gone to print, some thoughts occurred to me in the line of what you have been saying. The real solution of the matter seems, after all, to be in educating the boys and girls, the small farmers, the grocerymen, and everybody else, up to the standard of modern bee culture; and even then there is much further to be done. When some neighborhood gets to be overstocked with bee-keepers and bees (just as it is in your own case), we want the Christian spirit that actuated father Abraham when he said to Lot, "If thou wilt take the left hand, then I will go to the right; or if thou depart to the right hand, then I will go to the left." It won't pay for bee-keepers to crowd together in one spot; and, indeed, it is far from being necessary, for in almost every township and county there are large tracts where there are not bees enough kept to gather a tenth part of the honey that goes to waste every year.

FRIEND FRADENBURG'S CHEAP COMB HONEY.

HOW HE MANAGES TO SELL IT.

I WAS never successful in getting nice section honey in my locality, so I got an extractor and thought I would raise all extracted honey; but I have found it a drag to dispose of it. The people nearly all seem to want their honey in the comb; but, as Mrs. Chaddock has it in GLEANINGS, page 887, they don't want to buy boards. I have for some time thought of telling how I have found a plan to sell them the comb honey, and without the boards; but reading her article just now made me jump for my writing-material, and so here it goes.

First, to get the comb honey that will be nice and white, that can be sold cheap, fill an upper story of a hive with nice new brood-frames; exclude the queen from them, but let the workers fill them full, and they are pretty.

HOW TO SELL THEM.

I make a case that will hold ten or twelve brood-frames, with one side glass, but have the case about 4 inches deeper than the frames. Next I have a tin tray made that will just fit in this case, and slide down to the bottom, 3½ inches high, with a fly-tight lid, and handles on each end on the outside, to lift it with when it is done. Next I laid a layer of comb-honey that I cut out of unfinished sections in the tin tray, and poured extracted honey over them to merely cover them; then I hung in the brood-frames of comb honey to fill the case, put in a case-knife and a galvanized-iron spoon, and took the case over and set it on the store counter, with the glass side in front. In a very short time, word was sent over that they wanted more. The first case was made two years ago, and the cry has only been "more, more," and never a word of complaint. This season I fixed up two such cases, and put in about 100 lbs. in each, and set them in a buggy, and drove over all the stones I didn't miss, 12 miles, to Uhrichsville, to test its shipping possibilities, and not a cell was broken. Of course, I fastened the combs so they could not shake or flop around much. The merchants there are equally well pleased with the arrangement. Do you get the idea? The merchant can lift out a frame, cut out the amount a customer may want, be it an ounce, a pound, or five or ten pounds, and set the frame right back, and all the drip goes in the tin tray, and does not need to daub the counter or other goods a bit; and, further, if the weight does not come out even, a spoonful or two from the tray below will make it. A. A. Fradenburg.

Port Washington, O., Nov. 22, 1886.

Friend F., this reminds me that almost the first comb honey I ever raised was by picking out nice L. frames of white sealed honey while we were going over the hives. They were hung upstairs with a dripping-pan under them to catch the drip; and when we wanted a plate of honey for company, we just cut it out. Sometimes the friends would go up into our honey-room and see our stock, and it was almost sure to give them the bee-keeping fever to take a look at it. I feel sure that more comb honey could be secured in this way than in any other kind of a honey-box. You do not tell how much the merchant received from it, nor how much it netted you. Nowadays it makes a great deal of difference about how *much* a product sells for.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

BAGGING GRAPES.

In a recent number of Gleanings, the practice of bagging grapes is advised, in order to protect the cluster from birds and insects. This is good advice, as it is about the only method known by which perfect clusters may be secured, in sections where the grape-rot is prevalent. The bags are not proof against chickens, or, at least, only partially so; but they do serve admirably to prevent rot, and to keep off troublesome insects. Any one who has never tried the plan will be surprised and delighted when he sees the perfect and beautiful clusters that may be raised with so little outlay of time and money. It is not necessary, however, to use bags or sacks. All that is required is, that the clusters be covered. For this purpose it is just as well to use a bottomless sack, or, to make the matter more simple, take a sheet of some kind of paper that will endure storms; wrap around the cluster; fasten at the top with a pin, and the job is done. The paper may be left open at the bottom, but it is doubtless better to gather it in the hand, and give it a twist; but a pin is not required. It may require a little practice to do the work quickly and efficiently, but it is not hard to learn how.

There is one thing that must not be neglected, and that is, to do the work in time—almost as soon as the grapes form. A few days' delay will often render the work ineffectual, so far as preventing rot is concerned. Most people prefer grapes thus grown, to those ripened in the open air. The difference between them consists, for the most part, in the texture of the skin. The skin of bagged grapes is rather more tender than that of those grown in the open air. This is no disadvantage, except when grapes are to be marketed. Tender-skinned sorts like the Concord can not be grown for market very successfully by this plan, unless the market is quite near, in which case the grapes will often sell for two or three cents more a pound than open-air grapes. The difference is often so great that the bagged grapes are the only ones that are marketable at any price.

Will it pay? Most assuredly it will pay to grow the home supply in this way, except in localities where good grapes can be grown without the use of bags (that is, if it pays to grow grapes for home use. It appears that some people think that it pays to grow only such things as can be converted into cash; but that it is a luxury not to be thought of, to eat grapes if they can be sold, and a waste of time to raise them to grow them for home use alone). As to the profit in bagging grapes for market purposes, it all depends upon the cost of the work, and the price at which the grapes can be sold. Some who have tried it say that it pays, others that it does not. W. J. Green.

Ag. Exp. Station, Columbus, O.

BROOD IN THE UPPER STORY; QUEEN-EXCLUDING HONEY-BOARDS.

May I ask you a few questions? 1. In making a two-story hive for extracting, 10 L. frames below, 10 above, would you construct it so you could use a queen-excluding honey-board between?

2. In running 100 colonies for extracted honey, in how many would you expect to find brood in the upper story, providing you left the lower story intact, and no queen-excluding slatted honey-board between?

3. At the bottom of many brood-frames there is a space of ½ inch, more or less, not filled in with comb; and by putting on an upper story the bees will generally build down the comb solid to the bottom in the upper story, without the queen-excluding slatted honey-board; now, would they do the same if the queen-excluding slatted honey-board is used?

4. Not using the queen-excluding slatted honey-board, which do you consider the best bee-space—⅜ or 5-16 between upper and lower frames?

Fair Haven, Vt., Nov. 4, 1886. E. L. Westcott.

In the first place, friend W., I would just about as soon the queen would go in the upper story as not, when we are working hives for extracted honey. You can, however, easily prevent it by using a perforated zinc honey-board. As the slatted ones are thicker than those made of perforated zinc, you would have to increase the depth of your upper story in order to use them; whereas the Simplicity hives are all right for the plain zinc honey-boards. In running 100 colonies for extracted honey, very likely you would find brood in every one of them without the use of perforated honey-boards; but, as I said before, this is no objection to me. I think the bees would build the combs down to the bottom of the bars of every frame in the upper story, just the same as if the perforated zinc were used. I consider ¼ in., or 5-16 in., the best bee-space; ⅜ inch would be more likely to result in small combs.

A NOTE FROM AUSTRALIA.

Friend Root:—I certainly must address you by this name, as I look on you as a very good friend to all bee-keepers, and to me in particular. If it had not been for getting your A B C book I should have been groping in darkness for years. The majority of bee-books published don't go into details, and the unfortunate novice gets in a complete fog; and, in fact, he would be better off without them. I am getting some Italian queens from Chas. Bianconcini. I have received a letter from him, and his price is nearly double what he charges to America, and then he doesn't guarantee safe arrival. I am sorry to say that our prospect for a good honey-crop, in this district, is not very promising; but down on the coast they are having a good season. F. A. HUDSON.

Bathurst, New S. Wales, Oct. 6, 1886.

Friend H., I feel pretty certain that our friend Bianconcini will not charge you more than he does us, if you buy as largely as we do, and other circumstances are equal. We consider him to be a very fair, honorable man.—By all means, say "friend Root" when you are writing, if you feel like saying so.

BITTER HONEY.

We have had a very poor season this year, and the bees, as a general thing, have not made enough to keep them through the winter. I have had to feed mine. We have not had so poor a season for years; but very few have taken any surplus honey, and those that have are complaining. Will you explain to me what makes the honey so bitter? All that I have seen is so strong that it will make you "squeal." W. H. DICKINSON.

Deep River, Conn., Nov. 4, 1886.

I can not tell you, friend D., what makes your honey bitter. A good deal has been written in regard to it in our back volumes, and several plants have been mentioned as the probable source. Perhaps some of our readers can throw some light on the subject. Just before going to press with this form we notice the following on page 745 of the *American Bee Journal*, from the pen of Dr. J. P. H. Brown, Augusta, Ga.

> Some kinds of plants impart their odor and flavor more lastingly to the honey than others. After honey granulates and is again reduced to a liquid condition, the original odor and flavor are to some extent lost.
>
> That some few plants impart to the honey, besides the flavor, their medicinal and toxical properties is a fact, although denied by a few apiarists whose observation extends only to the familiarity with honey gathered from a few plants, such as white clover and basswood, and probably a few others. Illustrations: *Helenium tenuifolium* (I have heard it called dog-fennel by some persons, but it belongs to a different order of plants. Dog-fennel is another thing), is a weed, supposed to be an exotic, that is found in places in the South along roadsides. It commences to bloom about the first of August, and keeps on until frost. The leaves have a bitter, nauseating taste, and the extract, in the shape of tea, was used to some extent during the war as a substitute for quinine in the treatment of chills and fever. The old fields in my neighborhood are covered with it, and in some seasons considerable of this honey is gathered. It is as bitter as the plant, and possesses all the medicinal properties. Of course, I can not sell it, but it does for breeding-purposes.

OLD-FOGY FARMERS.

Our market here is a fair market, brought about by putting honey up in good style and of good quality. We are bothered here as in other places (as I see mentioned in GLEANINGS) with old-fogy farmers bringing in their honey in any kind of shape, just ruining our market. Our honey ought to be put up in the best possible shape, and of the best quality—at any rate, have the best sell first, and then we have the best all the time. There seems to be a little "free gratis" on our part. We fix up our honey, and get no more than those old farmers. I think the remedy is to organize and get together, if we can, and let them see their error. This is our conclusion, if the bees live till spring to help us out. It is our intention to winter our bees potato-hole fashion; and the way winter is setting in with 4 inches of snow on the ground, it's time the little imported fellows were stored away.

Clarksburg, Mo., Nov. 13, 1886. C. H. MCFADDIN.

THE INFERIORITY OF THE PURE BLACK BEES.

My queen I purchased of you has raised 8 queens. They all now have fine swarms. The smallest has 17 lbs. of honey; hive and all, without cover, weighs 42 lbs. I had one swarm of hybrid bees that made 112 lbs. of comb honey in 1-lb. sections. One other swarm made 100 lbs. I got 14 cts. per lb. for all. I have 19 swarms to go into winter with, all in fair shape. My neighbors have some bees, but there isn't one swarm in five that has honey enough to winter on. They are blacks mostly. I live 25 miles from St. Joseph, on one of the loveliest prairies that the sun ever shone on. It abounds with white clover. The weather is fine; the bees are having a nice fly to-day, Nov. 14, 1886. JOHN BLODGET.

Empire, Mo.

LEGISLATION TO PREVENT ENCROACHMENT OF OTHER BEE-KEEPERS OCCUPYING THE SAME FIELD NOT NECESSARY.

Bees are in fine condition for winter, after a very favorable summer. The majority of farmers in this neighborhood are beginning to keep bees, and are making a success of it by using the chaff hive, which is no doubt the best hive now in use, both for summer and winter. What does Dr. C. C. Miller mean? Would he prevent, by law, farmers from keeping bees on their own land? Why should there be a monopoly of bee-keeping, any more than of any thing else? A. F. STAUFFER.

Sterling, Ill., Oct. 30, 1886.

REPORTS DISCOURAGING.

UNFAVORABLE REPORT FROM TEXAS AGAIN.

IN this particular locality the bee-business has been any thing but encouraging the past season. The prospects were favorable in February, but have been growing worse all the while.

Early in the season foul brood made its appearance, and so far I have heard there is no one who has not suffered more or less loss. One of our leading bee-keepers has lost a great many colonies, but thinks by the persistent use of phenol he has nearly wiped it out. There has been but little surplus honey, and that from honey-dew. I think the experience of the past season would have cured the worst case of bee-fever. T. F. MCCAMANT.

San Antonio, Texas, Oct. 18, 1886.

BEES DON'T PAY.

I have just been reading GLEANINGS for Nov. 1; and although quantities of unread papers and magazines are at hand—having been too busy with my bees and honey to keep "read up"—I did not stop reading GLEANINGS when I once began, until I read all it contained, from cover to cover. I think I must subscribe for it next year, although I am almost decided to go out of the uncertain and toilsome business of bee-keeping, as it doesn't pay these times. There are so many bees here that honey is too plentiful to bring a good price. I sell good strained honey (just as free from bits of comb as extracted) at 7 cts. per lb., while the best white comb is 10 cts. Bees have not done well; the honey-crop failed in July. D. C. AYARS.

Moawequa, Shelby Co., Ill., Nov. 4, 1886.

REPORTS ENCOURAGING.

OVER 100 LBS. OF HONEY PER COLONY.

I BEGAN in the spring with 6 colonies. I took 634 lbs. of honey—about 100 of it in the combs, the rest extracted. This is besides what was used in the family, and we used it every day. I had no increase.

ALSIKE.

I sowed alsike clover with the red for meadow. At cutting time the Italians were working strong on both kinds, while the blacks were working only on the alsike. They also worked on the second crop of both clovers. I think the hay was better by having the alsike with it. I think I shall sow both kinds together in the future. I have had the best success in getting a "good catch" by sowing the seed on a light layer of snow in the later part of March. B. D. SIDWELL.

Flushing, O.

36 COLONIES, AND 10,000 LBS. OF HONEY.

My cousin has 36 or 37 swarms, and he has secured this season 10,000 lbs. of honey.

Lancaster, N. Y. OLIVER D. SEITZ.

FROM 70 TO 110, AND 5000 LBS. OF HONEY.

I have over 5000 lbs. of white comb honey, a fair crop for 70 colonies, considering drought. I increased to 110. JOHN A. WILLIAMSON.

Lodge, Piatt Co., Ill.

60 BARRELS OF HONEY YET TO SELL.

It has been a busy time this season, taking care of the bees and then marketing honey. We have 60 barrels of honey yet to sell. I have had no time to write, but I think I can get time to have a little talk with the boys after awhile. E. FRANCE.

Platteville, Wis., Nov. 19, 1886.

TURKEY-HILL APIARY.

I started in with 10 colonies of bees; increased them to 20, and took half a barrel of honey this last June. I now have about 500 or 600 lbs. to extract, which I will do as soon as I get time. We have had an excellent honey year. S. BRAEUTIGAM.

Rentchler's Sta., Ill.

218 LBS. OF HONEY FROM ONE SWARM.

I commenced the season with 35 colonies, increased to 80, and got 3000 lbs. of honey—2785 comb, and 215 of extracted. I have the Holy Lands and Italians. The former are the best honey-gatherers I have. From one young swarm, June 8, I secured 218 lbs. in 1-lb. sections. J. B. CRAVEN, 35—80.

Dixon, O., Nov. 10, 1886.

FROM 3 TO 21, AND 300 LBS. OF HONEY.

I commenced with three colonies in the spring. I increased them to 21 good strong hives, with plenty of stores for winter. I obtained 125 lbs. of comb honey, and 175 lbs. of extracted. I use foundation in 2-inch strips for starters in lower story, the same as in the sections. R. R. RYAN.

Bradshaw, Neb., Nov. 8, 1886.

A BEE-KEEPER 75 YEARS OLD.

I have been keeping bees for about 20 years, and this is the first season they have made any surplus to amount to any thing. They have given me this year about 300 lbs. of extracted honey, and about 100 lbs. in sections. This is not much, but I hope it is the beginning of better success. I am nearly 75 years old, and I am still able to attend to my bees, and hope to be for many years yet. I have 30 stands, but the surplus I got was from about a dozen stands of hybrids. HENRY J. ALVIS.

Montrose, Lee Co., Iowa, Oct. 12, 1886.

"SOLD LOTS OF HONEY."

This has been a very poor year for honey, although the fall has been favorable. Buckwheat made a very good flow, and the alsike we sowed in the spring gave considerable honey, so that they kept up breeding until late, and generally have enough honey to winter on. Honey is selling from 15 to 20 cts., and we are making quite a home market. We secured quite a large space at our granger fair, and made a nice exhibit, and sold lots of honey, and created quite an interest in bees and honey. GEO. W. WILLIAMS.

Economy, Ind., Oct. 29, 1886.

THIS YEAR THE BEST OF ALL.

Seven years ago I began bee-keeping, and this year has been the best of all. I commenced the season with 12 stands of my own, and 24 stands on shares, all very weak. I did not expect any honey or swarms at all. The fall of 1885 was very dry, and I did not feed any, which put my bees in bad condition. I took over 1000 lbs. and 22 swarms. The net proceeds for this year is $71.00. I have now 23 stands of my own, packed up for winter in Simplicity hives. I ordered one from you some time ago. I made my own hives. I made an extractor, which works all right. The honey crop in this part of the State is good. I have tried the Doolittle plan of forming nuclei, and succeeded very well.

LEWIS GLOVER.

Darkesville, W. Va., Oct. 28, 1886.

THE SUCCESS OF AN A B C SCHOLAR.

The goods I ordered all came in good shape. I have finished extracting, and now can make my report. I am an A B C scholar 4 years of age.

Number of colonies last spring	16
Increased to	82
Sold	1
Prepared for winter	81
Honey sold this season, pounds	1941
Honey now on hand	1419
Amount used on our table, estimated at.	240
Total	3600
Wax, pounds	30

Our bees are all in good shape, with plenty of good honey to winter on.

Of the honey, about 1600 lbs. is comb, and the rest extracted. The bees are as near pure Italian as I can keep them, and they gather honey nearly every day when it is warm enough. We have lost quite a number of swarms (I clip queens now), because we have not given our bees the attention they should have had this season. Our honey will average us about 10c. per pound. I have made all my hives, frames, sections, etc., so far, with hand-saws, planes, slitting-gauges, and miter-box; but I hope to buy sections and a Barnes saw for next year. JOEL C. MERRIMAN.

Wheatland, Mich., Nov. 15, 1886.

NOTES AND QUERIES.

POND'S METHOD OF WINTERING, SUCCESSFUL.

LAST winter I adopted Mr. Pond's method for wintering, and was so successful that hereafter I always wish to follow that method, as nearly as I can. You know he wants plenty of young bees with which to go into winter quarters. MRS. J. A. KEITH.

Brockton, Mass.

TOOK THE BEST PREMIUM.

I want to tell you that my comb honey took first premium at our county fair last week. The friends asked if it was not *imported* honey.

Macon, Miss. MRS. ELOISE FERGUSON.

THE SOOTY APPEARANCE OF HONEY.

The busy season is just over, and I can read bee-journals more carefully. I have seen just that sooty or smoky appearance this season in honey, and feel fairly satisfied it is caused by a slight mixture of honey-dew, not causing a bad flavor at all.

R. F. HOLTERMANN.

Brantford, Canada, Oct. 27, 1886.

"THE BEE-KILLERS."

The A B C book I received two years ago, has proven an invaluable aid to me. I use the Simplicity hive, a cheap make. My experience tells me to buy the best manufactured hereafter. Bees have done poorly this season. The bee-killers (box-hive men) got nothing this season. I got enough for home consumption. I winter in the cellar, without any loss. D. R. PHILLIPPS.

Fulton, Mo., Nov. 1, 1886.

HUNTING BEES.

The fall of 1884, I found 22 colonies in the woods; and in the fall of 1885, 31. Some of them I followed 2 miles in the woods. We have large woods here in Van Wert and Paulding Counties, O., and Allen Co., Ind. Every man who wishes to have good stock in his apiary will have to keep the black bees hunted out of the woods. There is nothing I like better than to have nice bright bees.

Dixon, O., Nov. 10, 1886. J. B. CRAVIN.

SWIMMING A RIVER IN NOVEMBER, WITHOUT ANY BAD RESULTS, AND NO CATNIP TEA, EITHER HOT OR COLD.

I discontinued the use of drugs, or doctoring, as it is called, some years ago. I had to swim the Big Manistique, at Burns' Crossing, last week, and no catnip tea or fire-water tonic. But when I reached the other side I felt as light as when just out of the army, and could run easier than I walked, *before* the icy river was crossed. F. M. BENHAM.

Petoskey, Mich.

THE WAX-PLANT.

[The following clipping has been recently sent in to us in regard to this vegetable wax. Can any of our correspondents give us any further light upon the matter?]

The wax-plant is now grown on a large scale in Algeria, and its product is gradually finding its way into the markets of the world. The process of separating the wax is simple. The fruit, inclosed in a bag of coarse cloth, is plunged into boiling water, on whose surface the substance soon floats. The wax is of the same chemical composition as beeswax, and is likely to be largely used in place of it. It is stated that these wax-plants may be seen growing wild in Pennsylvania and the Carolinas.

TOBACCO COLUMN.

MR. JOB H. MORGAN, of Worthington, handed me your GLEANINGS, and also gave me two colonies of Italian bees. I see in GLEANINGS that you will send a smoker free to any one who uses tobacco, and will quit the same. In good faith, I promise to abstain from the use of tobacco; and if I use it any more I will send you the price charged for smoker.

JAMES B. FOWLER.

Lumbersport, W. Va., Nov. 8, 1886.

I prevailed upon a relative of mine, Mr. F. G. Cook, of Murray, Ia., to quit the use of tobacco. Will you please send him a smoker? If he ever commences to use the weed again I will pay you for it. H. A. COOK.

Spring Hill, Kan., Nov. 5, 1886.

I have this day received from you a smoker, in consideration of which I hereby promise to quit the use of tobacco in every form. If I ever resume the use of the weed I pledge myself to pay for the smoker. D. H. HURST.

North Lawrence, O., Nov. 8, 1886.

S. Y. Kirk has quit chewing tobacco, having used it for 13 years. If you will send him a smoker I will see that you get your pay if he ever uses it again. R. H. KIRK.

Roanoke, Denton Co., Tex., Oct. 23, 1886.

A friend of mine, seeing your promise to give a smoker to any one who would give up the use of tobaco, has quit it. His name is George Joslyn. Please send him a smoker. If he ever uses it again he will pay for it. BYRON GUEST.

Maple Landing, Monona Co., Ia., Nov. 5, 1886.

Robert Reed works for me, and this is what he says: "I am going to quit using tobacco, and sign the pledge for a smoker. If I ever use tobacco again I will pay Mr. Root one dollar." If you want him to have the smoker, send to above address.

J. O. HARLAN.

Jolietville, Hamilton Co., Ind., Nov. 10, 1886.

I am a new subscriber to GLEANINGS, and a beginner in bee culture. After seeing in your Tobacco Column that you would send a smoker to any one who would stop the use of tobacco I quit the habit. If I break the pledge I will pay you $1.00 for the smoker. I like your A B C very much. It is the finest book published, on bees. W. H. STACY.

Mifflin, Iowa Co., Wis., Nov. 8, 1886.

WILL PAY FIVE TIMES THE PRICE OF THE SMOKER, IF HE RESUMES THE USE OF TOBACCO.

Noticing in GLEANINGS your offer to those who would quit the use of tobacco, and seeing the number who have already responded, forces me to the conclusion that you have struck the right way to accomplish a great object. In our childhood days, it was much easier to get us to do a certain thing when gentle means and a little *pay* were the inducement, than if force and harsh means were resorted to. After having been a slave to tobacco for thirty-odd years—smoking and chewing—you can add my name to your list of reformers, and send a smoker; and if I ever use tobacco again, in any form, I will pay you five times the price of the smoker.

J. F. HARNER.

Taylorville, Christian Co., Ill , Nov. 8, 1886.

OUR OWN APIARY.

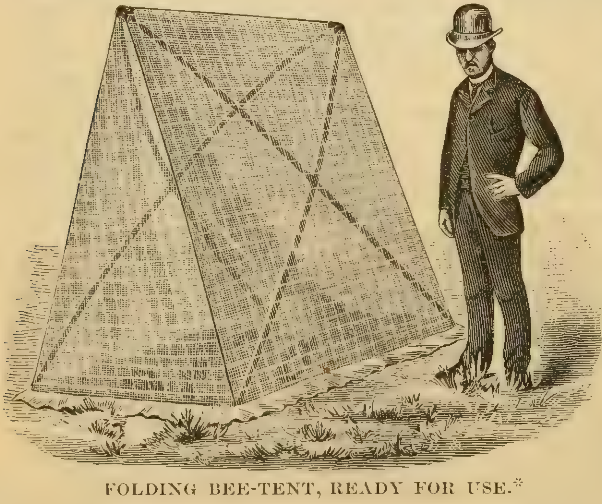
CONDUCTED BY ERNEST R. ROOT.

CONVENIENCES FOR THE APIARY.

NOW that the active work in the apiary has ceased, I propose beginning with this to write a series of three or four articles upon what I shall call "conveniences for the apiary." As the term signifies, I do not necessarily mean that the tools or implements I shall recommend are indispensable to a well-regulated apiary, but, rather, are helps, or, more correctly, conveniences, such as I have found from my experience of nearly ten summers in our own apiary. Although I had more or less to do with bees long before that time, my real active experience does not date back over ten years ago. I may touch upon a few old things, but I hope to present them in a new light. With this brief introductory I will first take up

THE FOLDING BEE-TENT, AND ITS USES.

I believe I have once or twice referred to the bee-tent during the past year. From these short occasional references, doubtless many of our readers would be pleased to know more of the various uses to which this tent may be applied to advantage. As we have just had some new engravings made of it, I will first present to you the bee-tent ready for use — the figure at the right indicating the height of the tent.

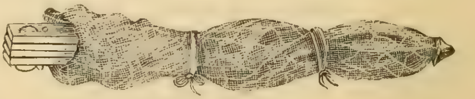


FOLDING BEE-TENT, READY FOR USE.*

If the fellow didn't look so *awful* conceited, I would own up that it is your humble servant; as it is, I will say that it is the apiarist.

You will observe that the tent is about six feet from the ground to the peak. The ground space is 4x6 feet. Thus you will see that there is ample room for a hive as large as the chaff hive, with plenty of room for the operator to work besides. The entire woodwork in its construction is simply four strips of basswood, 8 feet long, and tapering from the bottom to the top. They are crossed in such a way, and bound with strong cords, as to make a gable with convex sides. The whole is then covered with a sort of sack made of mosquito-bar. The result is, that the entire weight of the whole structure is only 6 lbs. (How to make these tents, see A B C of Bee Culture, under head of ROBBING.)

When it may be desirable to store it away, it may be quickly folded into a bundle, as represented below.



TENT FOLDED.

The tent, as thus folded, we shove into a couple of loops four feet apart, made by U-shaped cords, attached to screw-eyes in the ceiling of the work-shop adjoining the apiary. The tents, as they hang suspended in our work-shop, are just above our heads, and yet within easy reach of the hands, for immediate use as occasion may require. In regard to its use we will first consider

ITS UTILITY IN STOPPING ROBBING.

As I have already told you, on page 658, 1885, how it can be used to *stop* robbing after robbing has got fairly under way, I will not go into details here. It is sufficient to say, that when a colony is discovered as being robbed, quickly place the tent over the hive, and anchor the former down. If there is not already a hole or slit in the peak of the tent, one should be made. The robbers, on coming out of the hive, will bump about in the cage for a few minutes, and finally make their escape through the hole in the peak; but not one will return the way he came out. In a couple of hours all will be quiet; but, as the old adage runs, prevention is better than cure. I value it chiefly as

A PREVENTIVE OF ROBBING,

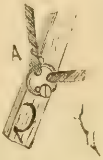
which I will now proceed to describe more at length. We will suppose that the honey-flow has suddenly stopped, and in going over the hives we discover that robbers are just beginning to show their annoying presence. They follow us about, and just as soon as the hive-cover and enameled cloth are removed they commence their pillaging. If we proceed thus all day, toward the latter part of it we shall find quite a little swarm of robbers making repeated raids into the hives. We are then obliged to contract the entrances of all nuclei; and if we continue to work thus, the next day we will unhesitatingly affirm that the bees are "unusually cross."

Now, it would be very desirable to avoid all this; hence we will take our "stitch in time." We proceed to the workshop, draw out the tent from its two loops, which I described, and set it on end outside.

---

*Our artist has shown the bottom fringe of the tent as common cloth; it is nothing but a continuation of mosquito bar.

We spread apart the basswood strips until each pair form sa letter X. We next grasp one of the rings on one corner of the tent, and draw it over the screw-head situated at the base of the strip, as seen in adjoining cut. In like manner we adjust the other three rings. The tent is now set up, and each of the strips will be bent in the form of a bow, as seen in either of the large cuts.



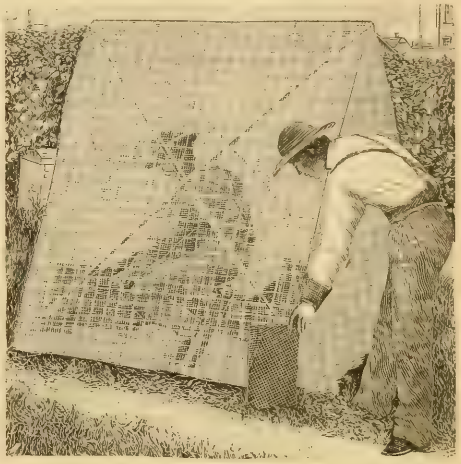
Having lighted our smoker, we grasp it with the right hand—the nearest corner of the bellows between the thumb and fingers. We now lift up one end of the tent and step inside. We grasp the two intersections of the cross-piece, at the same time holding the bellows of the smoker between the thumb and fingers. If you try a few times in different ways you will soon learn the knack of holding one side of the tent and the smoker at once, with ease. We can now cage ourselves and the hive together; take all the time we want to examine the hive, robbers or no robbers. The latter will buzz around the outside; but if we continue to examine the hive thus in rotation all day they will give it up as a bad job. If, on the other hand, the robbers have got started, they will be likely to follow the cage about for two or three days, even though they do not get inside. But if we are careful not to give them a "sip" of stolen sweets, they will finally let us alone.

Where there are no grapevine twigs to stick out and hinder, the tent will cause but little more trouble than the non-use of it, and if we take into consideration the fact that the use of the tent prevents the annoying presence of robbers, the time and trouble saved will vastly more than compensate any possible inconvenience it may occasion.

Right here I will say, before I forget it, if you use the tent awhile until the robbers have ceased buzzing about, then lay it aside for an hour or so, you will get the robbers started again, and then when you resume the use of the tent you are right where you started. If you wait too long before you resort to the tent, the robbers may be out in such strong force as to make even the tent fail of its object; for when the work with the hive is finished, and the tent is lifted off, the swarm of robbers will pounce into the entrance in such force as to make a real case of robbery; and before the inmates of the hive are aware of what is going on they have an "elephant on their hands." It is true, you may contract the entrance, but the bees will boil around every crack of the hive like mad hornets. When there are many queen-rearing nuclei in the apiary it doesn't pay to let things go so. It is and has been a standing rule in our apiary, that as soon as the bees show a disposition to rob, either quit work or use the tent—the latter alternative being the one most frequently adopted.

THE TENT INVALUABLE FOR TRANSFERRING.

The A B C of Bee Culture says, that the best time to transfer is during fruit-bloom. But it often happens that we want to transfer at some other time of the year. In all probability we shall need something to keep away the robbers. In order to give you a better idea of how to transfer by the use of the tent, we have had our special artist give you a picture of transferring in our apiary in process.



TRANSFERRING WITH THE TENT.

The operator inside has the old hive from which he is transferring, together with the new hive and all necessary fixtures for holding the combs in the frames. Besides these he has a saw, chisel, uncapping-knife, smoker, bee-brush, a large shallow drip-pan to catch drippings of honey, and clean wired frames. To make his work as easy as possible, he sits on a tool-box. In case he wants a frame or tool which by oversight he does not happen to have, an assistant, who may be engaged elsewhere in the apiary, at a call brings him whatever he desires. In the engraving you observe the assistant is in the act of passing an empty comb under the mosquito-netting.

You may think that transferring in this tent is in pretty close quarters, but I have transferred in this way a number of times easily and suceessfully, and the tent proved no real hindrance. However, I always removed one of the sides of the box hive outside of the tent, and then arranged my work in as small a compass as possible, to allow the tent to cover all.

THE TENT FOR GETTING BEES OUT OF SECTIONS.

Dr. Miller, in his "Year Among the Bees," suggests the possibility of using the bee-tent for this purpose, although at the time he wrote I believe he said he had not tried it. This fall, in my conversation with him, he stated he had used the tent the past summer for getting bees out of sections, and that it worked admirably. Although we have not tried this experiment exactly here at the Home of the Honey-Bees, yet from my knowledge of the workings of the tent in similar experiments I am sure it would work. The *modus operandi* then would be something like this: Get as many bees out of the crates of sections, when taking off honey, as may be possible, either by shaking or smoking. Next, quickly carry crate or crates of honey, with adhering bees, and place them under a bee-tent. In like manner place others under the tent until there are as many stacked together as can be covered by the tent. Leave for a time or until the bees have all crawled out and clustered in the peak of the tent. There, through the hole which I have described, the bees will escape, and return to their respective hives; and if the tent has been securely anchored down in the mean time, no robbers can gain access to the crates. These, after being freed from bees, are now ready to take to the honey-house, when the sections can be removed and cleaned in readiness for market.

THE TENT TO CATCH SWARMS.

Something over a year ago, D. A. Jones, in the *C. B. J.*, related the following incident: While he was at one of his out-apiaries, a swarm came out; when it had got fairly into the air, another began to come out. The thought struck him to immediately clap the tent over the hive from which the bees were pouring. This his man did; and when they had disposed of the other swarm they returned to find the other caged in the peak of the tent.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, DEC. 1, 1886.

Blessed is the man whose strength is in thee.—PSALM 84: 5.

OUR subscription list is running up with a sure and steady pace. We now have, up to date, 6074. Many thanks, friends.

MICHIGAN STATE BEE-KEEPERS' ASSOCIATION.

WHILE dictating these editorials I am waiting for the train to take me to Ypsilanti. I expect to have many good things to tell you on my return.

ORDERING EARLY.

REMEMBER our discount for this month is 5 per per cent—a drop of 3 per cent from last month. If you desire to get the lowest prices in supplies order early. With our new machinery and increased facilities we think we can give you better goods than ever before.

IS FOUL BROOD CURED IN OUR APIARY?

A NUMBER of our friends have written us something like this: "I am very glad to hear that you have at last cured foul brood." We have not yet claimed that. We did say, that, as brood-rearing had ceased, foul brood had of necessity stopped. If it shall not re-appear in the spring, *then* we shall think we have cured it.

OUR PREMIUM LIST.

YOU will notice, inclosed in the back of this issue, our supplement and premium list. Although we have in former years offered awards to those of our patrons who have solicited names, we have felt that this year they ought to have a larger and better collection from which to choose. Most of the presents therein presented are new goods, and are well suited for holiday gifts. If you can not secure *new* names, hustle in the old ones before their subscription expires, and get something. We would ask you to preserve this Premium List for future reference.

BRICKS OF CANDY.

Have you nice sealed combs of stores laid away which to give all the colonies this winter that may be running short, before spring? If you haven't, now would be a good time to make and have in readiness some bricks of candy. (How to make, see A B C of Bee Culture.) These bricks you can lay right over the cluster of any colonies, such as you may find, during a few of the warm sunny days of winter, to be in need of stores; you can usually determine, with a little practice, whether such colonies are running short, by lifting up one end of the burlap and "hefting" the ends of all the frames.

THE CHRISTIAN'S SECRET OF A HAPPY LIFE.

WE are pleased to notice that we have just received another shipment of this great book, amounting to 1250 copies; and although it is considerably enlarged, having several new chapters, the price is reduced to 25 cents bound in paper, and 50 cents in cloth, gilt edge. If wanted by mail, add 5 cents extra for postage on the paper bound, and 8 cents on the cloth. When I first read the book, some four or five years ago, it seemed to me it must prove such a great help to those struggling toward godliness that it ought to have a very large circulation among the people; but I hardly dared hope we should be able to sell it at the rate it has been called for.

QUEENS AS PREMIUMS.

ONE of our correspondents wishes to know what we can offer in the way of queens as premiums. For the benefit of those who may prefer queens to any other presents we will make the following offer: For 10 new subscribers we will send, the first of next May, one of our best imported queens; for 6 new names, a select tested queen; for 4 new names, an untested. Remember, at this offer the queens are to be sent in May. If you desire to have the queen sent at any other month, write us. The names can be secured now, and sent in; but you must state, at the time of sending, that in return you desire to draw a queen or queens, according to the terms of this offer. We will then book your order for next May.

THE NEW BEE-KEEPER'S MEDLEY.

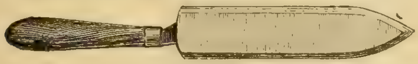
THE above, which we mentioned Nov. 1st, is now framed and hangs over our desk. As we sit reading letters from our bee-friends from all over our land, it gives us peculiar pleasure, after reading their productions, to view their faces. We come to know our friends and their peculiarities from their writings; and to look upon their faces makes us feel face to face with old friends. In some cases we are surprised, and we mentally exclaim, "Why! I didn't know he looked like that." Again, our opinion is confirmed—"Just about such a looking man as I thought." This face indicates that he is good-natured, intelligent, or, perhaps conceited. Although some of the faces appear not quite natural, yet in general the medley as a whole will help us to recognize most, if not all of the faces, if we should see them at a convention.

GETTING RID OF LIFE-INSURANCE AGENTS.

One of our subscribers, a life-insurance agent, seeing the little note on page 915, under the above caption, writes: "Tell Ernest, that if I should get after him he couldn't scare me as he did the other fellow. I'm not afraid of bees." Very true; but then, you are away over in New York. Still, if you should ever think best to come to Medina, and talk with me in regard to the merits of the "semi-tontine," let me know just a little before hand, and I will contrive to have some Carroll Cyps in readiness for the occasion. I will also manage to have all the veils and smokers missing, except my own—a liberal offer, don't you think? The other fellow (the one who weighs 200 lbs.) has since been around, but he very cautiously asked, "Got any bees about you?"

ABBOTT'S NEW HONEY-KNIFE.

Our friend C. N. Abbott, ex-editor of the *British Bee Journal*, has brought out a honey-knife made of Sheffield steel; and even after paying duties and imports we are enabled to furnish it at the regular price of the Novice honey-knife. The cut of it below explains it by saying that the blade is 2 inches wide and 8½ inches long.



ABBOTT'S UNCAPPING-KNIFE.

Of course, this knife can not take the place of the well-known Novice honey-knife, and other similar knives, for its office is for uncapping and *nothing else*. If wanted by mail, add 10 cents extra for postage and packing.

DECLINE IN THE PRICE OF HONEY-JARS.

We are pleased to receive the following letter from friend Muth:

> We have made a change in the price of our honey-jars, of which please make due notice in your next number of Gleanings. Hereafter our price for square glass flint honey-jars will be:
>
> | | |
> |---|---|
> | Dime jars (a gross in a box), with corks, per gr. | $3.00 |
> | ½-lb. " " " " | 4 00 |
> | 1-lb. " (a gr. or ½ gr. in a box) without corks, per gr. | 5.00 |
> | 2-lb. " " " " | 6.50 |
> | Corks for 1 and 2 lb. jars, " | .75 |
>
> In lots of 5 gr. jars or more, assorted if you choose, we allow a discount of 5 per cent.
>
> Flint glass jars being the nicest jars for honey, and prices having been reduced, we have concluded to abandon the trade in green-glass honey-jars. Chas. F. Muth & Son.
>
> Cincinnati, Ohio, Nov. 22, 1886.
>
> P. S.—I inclose our jobbing price list of honey, and will add that our trade in jar goods is better than ever. Size and shape have been uniform for years, and is known to the trade and consumers, and no suspicion rests on its purity. There is no eastern extracted honey in any shape in Cincinnati, although their jars were more stylish (or fancy) than ours, and 5 or 10 years ago they seemed to be strong competitors. M. & S.

The above prices will be the same that we charge here.

SHALL WE ALLOW OUR HIVES TO BE COVERED WITH SNOW?

I for one say, let the snow come—the more the better, and under no circumstances attempt to meddle with it at all. I have never yet known a hive of bees to be injured by snow—not even where sleet and freezing rain closed the entrances entirely, and I don't know that I ever heard of a case where I was satisfied that the snow or ice did any harm. If a bee-hive could be made as tight as a glass jar, and the only opening were closed up with ice, it might do harm; but no bee-hives that I know of are made in that way. Disturbing the bees by brushing the snow away, or tramping it down, *does* do harm, for we have had several cases of the kind reported in our back volumes; that is, the hives where the snow was brushed away, or tramped down about the entrances, did not winter as well as where they were let alone.

CAN BEES BE DECLARED BY LAW A NUISANCE?

It seems our Canadian friends are also about to have trouble over this question. A blacksmith named McIntosh was annoyed by the bees owned by a neighbor named Harrison. McIntosh claimed that the bees flew all over the neighborhood, stinging the people. They annoyed the horses in his shop, and made trouble when the women-folks were making preserves. The jury brought in a verdict that the bees were a nuisance, and that he was entitled to an injunction. The judge, however, refused to grant an injunction, but reserved it for argument in a full court. And now our Canadian friends are talking about a Canadian bee-keepers' union. A bee-keeper residing quite a distance away says he for one will give five dollars, to see the case fairly tried. The editors of the *C. B. J.* propose to do as well; and as the case has been presented to me, I for one feel like offering my five dollars also. Of course, we do not wish to gain our case by the money we raise, but we do wish to have the case fairly and squarely presented, before any decision is made. Keeping poultry is oftentimes as annoying, if not more so, than keeping bees, but what court would say a man could not keep chickens?

CONVENTION NOTICES.

Nebraska bee-keepers will meet for their next annual session in Lincoln, Neb., on the second Wednesday in Jan., 1887.
H. N. Patterson, Sec.

The Keystone Bee-Keepers' Association will meet at Court-House, at Scranton, Pa., on Tuesday, Dec 14, 1886, at 10 A. M.
Clark's Green, Pa. Arthur A. Davis, Sec.

The Vermont Bee-Keepers' Association will hold its annual meeting in Burlington, Vt., on the 13th of Jan., 1887. The Programme is not fully made up, but it is expected there will be a two-days' session. R. H. Holmes, Sec.

KIND WORDS FROM OUR CUSTOMERS.

A KIND WORD FOR THE A B C FROM ONE OF OUR AUSTRALIAN FRIENDS.

Please send to me by post, 2 copies of A B C, cloth; the ones I have had are all sold, and also the one to arrive next mail. It's the best on bees published. I would not be without a copy on any account. Fred'k A. Hudson.
New South Wales, Australia.

The A B C book sold on sight — no need to talk up its merits. I just handed it to a friend who had called, and as soon as he opened it he said, "I must have you get me one." C. A. Lower.
Wabash, Ind.

GLEANINGS AND HOW IT PAYS TO ADVERTISE IN IT.

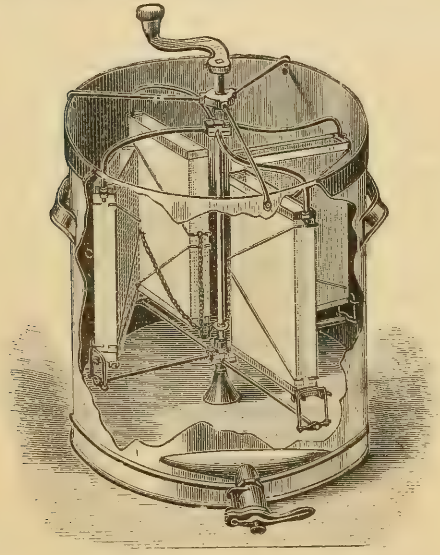
Gleanings is not the only paper in which I have advertised, but it certainly has done the best of any for me, as its readers seem to put more confidence in those short advertisements, even though the advertisers be strangers. I will here say, that if any one has sent me money for which they think I have not rendered full value I will with pleasure make it satisfactory. D. S. Hall.
South Cabot, Vt.

Dadant's Foundation Factory, Wholesale and Retail. See advertisement in another column. 3btfd

BEE-HIVES, ONE-PIECE SECTIONS, SECTION-CASES, FRAMES, &c.,

Of superior workmanship, from SMITH & GOODELL, Manufacturers of and Dealers in Apiarian Supplies, Rock Falls, Whiteside Co., Ill. Send for Price List.

STANLEY'S Automatic Honey-Extractor.



Great Improvements and Enlarged Facilities for Manufacturing.

Reduction in Price of 4-Frame Machines.

Parties wishing to handle the Automatic Extractor and dollar Smoker should write for terms to agents, and inclose 50 cts. for cut of the extractor to insert in their catalogue.

10.000 Circulars out for 1887.

Send for circular, with testimonials from those using the machines and smokers.

I MEAN BUSINESS.

Address **C. W. STANLEY,**
23d **Wyoming, N. Y.**

IN order that I may pay off my debts, and devote my whole time to preaching the gospel, I offer my entire apiaries, consisting of about 90 colonies of Italian and hybrid bees, 60 empty hives, 3 extractors, and other bee-supplies, for sale at a great sacrifice. Persons wishing to buy would do well to correspond with me *immediately. I must sell.* JAS. ERWIN.
21tfd Smith's Grove, Warren Co., Ky.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

SAY! the **ACME PAPER-HOLDER** holds all sorts of small things, as papers, letters, almanacs, magazines, pamphlets, cards, etc., and does it quick, before they get lost, stolen, blown away, or the baby gets them. By mail, **10**c.; two, **15**c.; five, **25**c.; twelve, **50**c. Agents wanted.
Address **N. E. JOHNSON, Medina, O.**

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for cash, or good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

THOROUGHBRED fowls, Brown Leghorns, S. S. Hamburgs, W. C. B. Polish, P. Rocks and Wyandottes, Bonney's, Forbes', Hawkins', Wilcox & Fultz' strains. We will sell for cash, or exchange for fdn. and beeswax. Price list free.
18-19tfd A. H. DUFF, Creighton, Ohio.

I HAVE about 5 lbs. of spider-plant seed. I will exchange the same for different kinds of flower-seed or plants of any sort that are useful and ornamental. J. W. ROSS,
23-24-1-2d Phair, Brazoria Co., Texas.

WANTED.—To exchange for extracted honey, cash, or offers, one Adams horse-power, cost $40.00; never has been used over half a day. I will take $20.00 for it. It is just as good as when it came from the factory. 22-23d C. M. DIXON, Parrish, Ill.

WANTED.—To exchange for pure extracted honey, apiarian supplies, or offers, one Star bicycle, but little used. Write for description.
Address C. H. WATSON, Newtown, Bucks Co., Pa.
22-23-24d

15 VARIETIES raspberries; fine plants, new varieties, in exchange for comb or extracted honey. For particulars, address E. T. FLANAGAN, Box 995, Belleville, Ill.—Eight acres in small fruits.
22-23-24d

WANTED.—Extracted honey for pure Pekin ducks, cockerels from Corbin P. Rocks, L. Brahmas, and Wyandottes; one black and six hybrid queens; also plants in the spring—Cuthbert raspberry, Cumberland Triumph, Mt. Vernon, and Sharpless strawberry. Please state price of honey, and what is wanted. G. A. FARRAND,
22-23 Kamm's, Cuy'a Co., O.

$3000 cash down will buy my store and contents, dwelling-house and stable, large lot with the same. A running stream, with carp-pond on lot; also 19 colonies of bees in Simplicity chaff hives. Will exchange for good land.
23d S. HEATH, Rimer, Armstrong Co., Pa.

WANTED.—To exchange merchandise or cash for new or second-hand chaff hives, Simplicity upper stories, drone and queen traps, wide and brood frames and separators. Write for particulars.
23d THOMAS DREW, So. Hanover, Mass.

WANTED.—A man to take charge of on shares, or buy, an apiary of 75 hives of bees in good condition. Address E. G. HEDDING, Paw Paw, W. Va.
23tfdb

WANTED.—An extra-fine large young bronze gobbler. Give strain, actual weight, and price.
23 C. L. DAVIDSON, Flemington, W. Va.

WANTED.—A foundation-mill, or offers, for a first-class incubator—been used three seasons.
23tfdb D. S. HALL, So. Cabot, Vt.

WANTED.—To exchange a fine pair of Toulouse geese or a swarm of bees for a pair of good pure-bred bronze turkeys.
23d O. G. JOSENHANS, Owosso, Shia. Co., Mich.

WANTED.—To exchange comb and extracted honey for Langstroth or Simplicity hives. They must be 8-frame, 1½-story, for comb honey, or any other hive that takes that size of frame.
23d Address LOUIS WERNER, Edwardsville, Ill.

SUPPLEMENT.

GLEANINGS IN BEE CULTURE.

DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.

Vol. XIV. Supplement to December 1, 1886. No. 23.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18c per year extra. To all countries NOT of the U. P. U., 42c per year extra.

OUR PREMIUM LIST.

HOW TO GET HOLIDAY PRESENTS.

IT is with some degree of pleasure that we inclose this, our supplement to GLEANINGS. As Christmas, with good old Santa Claus for the little folks, is drawing near, we hereby present to you our annual premium list of presents. Of course, our object in so doing is to increase the subscription list of GLEANINGS, and, as we hope, its usefulness. While some will prefer the cash commissions we have been offering for the collection of names, a very large number, especially the little folks, will prefer the presents; nor could they be induced to work for GLEANINGS under any other incentive. As we have just purchased a new lot of beautiful holiday presents, we would respectfully invite your careful perusal of the premiums herein presented. If you are of a literary turn of mind you will be interested in looking over our list of new popular books for old and young. Their beautiful bindings, embossed on side and back in gilt, will make them an ornament in any home. The younger members of the family will find pleasure in looking over our list of new toys. Then there is a collection of new tools, with a lot of other articles useful as well as ornamental. As apiarian supplies are so well advertised in our price list and elsewhere, we purposely withhold mention of them here as premiums. After looking over the list of presents herein described, should you feel that you have not the time to collect names, send us the cash for the article or articles you desire.

Now we should feel that there is one thing omitted were we not to give

A BRIEF TALK TO THE JUVENILES ON HOW TO OBTAIN PREMIUMS.

We appeal to you, little folks, because we believe that you can render us valiant service. Perhaps we can tell you how to go to work. At any rate we will suppose that your situation is something like the following:

There is Tom, way down in Arkansas, who wants a kite "awful bad." Then there is Frank, up in Wisconsin, who wants a magic lantern. The evenings are long, and he wishes to throw pictures on the wall, and charge 5 pins for admittance to his show. Mary doesn't care about boys' premiums, so she wants a doll. How shall you get the names? Why, old Uncle Phil, down the lane a piece, has kept bees in box hives "well nigh on to 40 year;" and then there is rich old farmer Jones, about half a mile out. He also keeps bees in box hives, and doesn't know much about "these 'ere new fixins'." Suppose you, my young friends (older ones too), take over to each a sample copy of GLEANINGS, and explain its merits, and the advantages of the improved methods over the old. It is easier said than done, I know; but you can try it. The urgent appeal of a young intelligent face will accomplish much. If you do not succeed, you can send in your papa's name, at any rate, before his subscription expires, and get something. There are box-hive men all over our country, and this is just the class of people whose names we want to put on our list. Will you help us, young and old?

PREMIUM RULES.

All collecting Premium names should read carefully the following rules:

1. You can close your list of names at any time, and call for the premiums due; or you can add to the list of names up to June, 1887. But—

2. Send along the names as fast as gathered (with the exact money), so that the subscribers may begin to receive the Journal at once.

☞Mark every name or list of names, *"For Premiums,"* if so intended, and we will credit them to the sender in our Premium Record.

3. *Be sure to give the Name, Postoffice, County, and State, of each subscriber and of yourself.*

4. **All sample copies** necessary to canvassers will be sent postpaid free.

5. Express or freight charges on the premiums can be best obtained at your own nearest express or freight office. When you order your premium, be sure to tell how to send, and give name, county, and State of your nearest express or freight office.

6. **To Foreign Readers.** Mailable articles, not exceeding 8 ounces, go to Canada for 10 cts. per parcel; but packages exceeding 8¾ oz. are excluded from the mails to Canada. To all foreign countries in the Postal Union, 18 cts. must accompany subscription for postage; and to all other foreign countries, 42 cts.

How to Send Money: Send money by P. O. order, registered letter, express money-order, on American Express Co., or get a N. Y. draft. For small sums of less than $1.00, we will accept clean postage-stamps, but we prefer postal-notes, but can not be responsible for the loss of either.

BOOKS! ✽ BOOKS! ✽ BOOKS!

BIG OFFER; A LIBRARY FREE.

For 2 New Subscribers to GLEANINGS, at $1.00 each, we will send any one of the following books. Postage 12c each extra if sent by mail. The price of these books to those who want to buy is 40c, or 52c postpaid. They are beautifully bound in cloth, with title in gilt, and contain from 200 to 600 pages, printed on excellent paper:

Arabian Nights Entertainment, 450 pages.

Children of the Abbey, by Roche; a very good and interesting story.

Dickens' Child's History of England; 341 pages. An authentic history of England; written by the very interesting author Charles Dickens—a book of real value to old and young.

Dickens' Shorter Stories, 350 pages of interesting and profitable reading-matter.

Half-Hours with Great Authors.

Half-Hours with Great Humorists.

Half-Hours with Great Novelists.

Half-Hours with Great Story-Tellers.

Gulliver's Travels and Baron Munchausen, by Swift and Rasp.

Ivanhoe, by Sir Walter Scott; 431 pages. One of the best writings of one of our best authors.

Lady of the Lake, with notes; Scott's best poem.

Jane Eyre; by Charlotte Bronte. A very interesting and thoroughly good story.

Last Days of Pompeii, by Bulwer. Now when that ancient city is being so thoroughly excavated, and reported in the papers, it will be interesting to read this old standard work in connection.

Last of the Mohicans, by Cooper; 358 pages—a most pathetic story of the struggles of a dying race.

Oliver Twist; Italy and American Notes, 519 pages, by Dickens, whose writings need no recommend.

Our Mutual Friend, Pickwick Papers, Martin Chuzzlewit, others of Dickens works.

Paul and Virginia, Rasselas, and Vicar of Wakefield, by St. Pierre, Johnson, and Goldsmith.

Bunyan's Holy War; 318 pages, by John Bunyan, the author of Pilgrim's Progress.

Pilgrim's Progress, by John Bunyan—a book that has a circulation second only to the Bible; 422 pages.

Robinson Crusoe; 472 pages—a book that every boy will delight in reading; by Daniel Defoe.

Romola, by Elliot.

Scottish Chiefs, by Porter.

Sketch Book, by Washington Irving; 374 pages—a collection of fascinating sketches by one of our best authors. Rip Van Winkle is one of the stories.

Life of Washington.

Life of Napoleon.

Swiss Family Robinson—a history of the privations and experiences of a family, from actual life.

Life, Speeches, and Memorials of Daniel Webster; a book of 552 pages, of surpassing interest to every boy who aspires to noble service of his country in an office of public trust.

Thaddeus of Warsaw, by Porter.

Cook's Voyages Around the World—a history of the thrilling adventures of that notable English explorer Capt. Cook.

The Christian's Secret of a Happy Life—new edition, enlarged; ought to be read by every Christian.

First Steps for Little Feet, by the author of the Story of the Bible.

Christmas Stories, by Dickens. If you do not believe in making Christmas a joyous time, you ought to read some of these stories.

Tom Brown's School Days at Rugby, by Hughes. An amusing narrative of a schoolboy's experience.

Life of Patrick Henry, by Wirt. A biography of one of the fathers of the Revolution.

For 1 New Subscriber to GLEANINGS, at $1.00, any of the following books will be sent, you paying postage.

Christian's Secret of a Happy Life. New edition, enlarged, paper cover. Price 25c; postage 5c extra.

Robinson Crusoe, in paper covers. Price 20c; postage 5c extra.

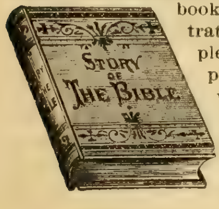
A Dose of Truth, paper cover. Just the thing for tobacco-users. Price 20c; postage, 3c extra.

A B C of Potato Culture, by T. B. Terry. Paper cover. Nobody should try to raise potatoes without reading this work. Price 35c; postage 3c extra.

A B C of Carp Culture, by Peirce. Paper cover. Invaluable to carp-growers. Price 35c; postage, 5c extra.

The Winter Care of Horses and Cattle, by T. B. Terry. Paper cover. An excellent talk by this most practical author. Price 40c; postage, 3c extra.

SOME MORE SPECIAL OFFERS ON BOOKS.



Story of the Bible. This is a large nice new book of 700 pages and 274 illustrations. It is so plainly and pleasantly written that grown people, as well as children, will hardly want to lay it down. In the hard passages in the Bible, difficult to understand, it makes a commentary that will be thankfully received by some others besides children. For 3 new subscriptions at $1.00 each, and 15c to pay postage, the above book will be sent free.

HOW
TO
KEEP
A
STORE
TERRY

How to Keep Store. A nice new book of 406 pages. If I mistake not, there are not a few among our readers who will be delighted to get such a book. It embodies the conclusions of Thirty Years' Experience in Merchandising. Eigth edition printed in 1884. Any one who sells goods at retail will find it a boon. This book will be sent free for four new subscriptions at $1.00 each and 10c extra to pay postage.

FABLES AND ALLEGORIES. The most beautiful piece of work in the way of a book that I have ever sold, and I do not know but it is the handsomest book I ever saw. It is a large-sized book of 512 pages, full of engravings of surpassing beauty. The paper and printing are probably equal to any thing in the way of a book now in the market. Our readers may ask, "What are the fables and allegories about?" Well, they are about you and me. As an illustration, in the center of the book you will find the fable of the lantern people which I gave on p. 345, May 15, 1885. I copied the story, but I did not have the wonderful pictures that the author has in this book. The book is written by the author of the Story of the Bible. There is but one fault to find with it; that is, it costs $2.00. However, if any of you want a book worth $2.00, every cent of it, you will find it in this book of fables and allegories. It will make you cry, if you don't look out; and the chances are very great that you will be better after you have cried. I never saw any thing in my life nicer for a Christmas present; or if you want a beautiful book to put on the center-table of your best room, you can not find a handsomer one for the money. Perhaps I am saying a good deal; but if you do not agree with me after you have seen the book, you can send it back and have your money returned. They are so large and heavy that the postage on them is 32c extra. We can sell two books for $1.75 each; three for $1.65 each; five or more, $1.60 each. The above book will be sent free to the person sending **6 new subscriptions** to GLEANINGS at $1.00 each, with 32c extra to pay postage, if sent by mail.

A YEAR AMONG THE BEES; by C. C. Miller. Price 70c; postage 5c, bound in cloth. Will be sent free for 3 new subscriptions at $1.00 each.

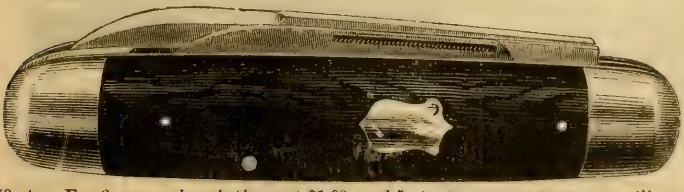
LANGSTROTH ON THE HIVE AND HONEY-BEE. That old standard work by the father of bee-keeping will be sent free for 6 new subscriptions at $1.00 each. Postage 10c extra, if sent by mail.

SUCCESS IN BEE CULTURE, by Jas. Heddon; will be sent postpaid for 2 new subscriptions.

Any other books in the book-list on cover page of Gleanings will be sent as premiums on the following basis.

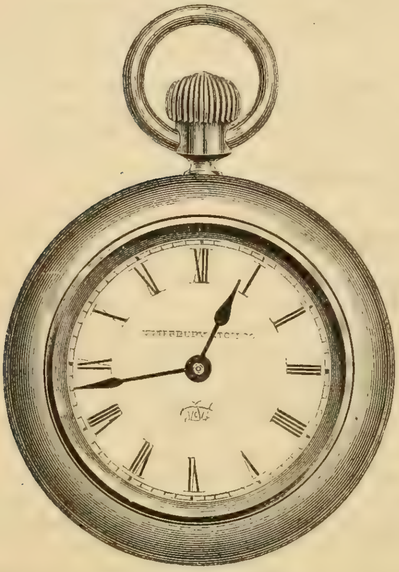
For *one* new subscription, books to amount of $	.20
" *two* " " " " " "	.45
" *three* " " " " " "	.70
" *four* " " " " " "	1.00
" *six* " " " " " "	1.75
" *ten* " " " " " "	3.00

MISCELLANEOUS ARTICLES.



Knife, Excelsior. Razor steel, hand-forged, brass-lined, one German-silver tip on the knife we send out, cut shows two. This is the very best knife we keep, and, in fact, is as good as any one would want. Price 50 cts. For 2 new subscriptions at $1.00, and 5 cts. to pay postage, we will send the above knife free.

"The Waterbury."



Waterbury Watch, Series E. Given for 5 new names at $1.00 each.

For a Christmas or New-Year's present, it is the prettiest and most useful article for a boy, man, or even for a lady, who teaches, or for any one who needs a timepiece (as they are rather small in size), of any thing that can well be imagined. The cases are nickel, and wear with a luster when carried in the pocket, surpassing even silver. The whole is put up in a very pretty box, with a book of instruction on the care of it; and every time I look at one, I can only wonder that they can be furnished for any such sum of money.

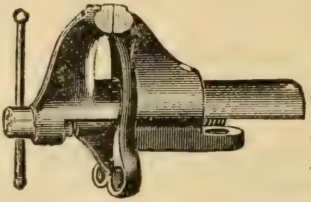
We will send the above, postpaid and registered, for $2.75, or the watch with GLEANINGS for 1 year, for $3.00. For 5 new subscriptions, at $1.00 each, we will send a watch free; or for $5.00 we will send GLEANINGS for 5 years to one address, and give you a watch free. Besides the above we have a few watches of the older styles which keep just as good time, and look almost the same. To dispose of these we offer them at the following rates:

Series C, postpaid, $2.50, or for 4 new subscriptions.

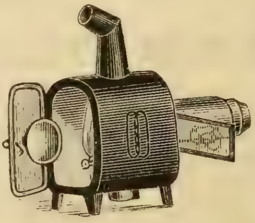
Series B, postpaid, $2.00, or for 3 new subscriptions and one renewal.

Series A, postpaid, $1.50, or for 2 new subscriptions and 2 renewals.

Remember, all these watches are carefully regulated and tested to run while being carried in the pocket. We also warrant them for 30 days. If the watch reaches you in bad order, or gets out of order inside of 30 days (neither of which is probable), send it back to us, being sure to put your name on the package. At the same time, write us, telling what is the matter if you can, and we will either send you another, or put the one you return in good order again, and send it back, you to pay postage. What boy has not often wished for the time to come when he could carry a watch that was all his own? Here there is a chance to get a watch free by **a very little effort.**



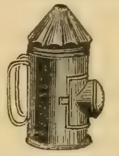
AMATEUR BENCH-VISE. This is a little beauty, and wonderfully handy for any one who likes to fix things up. The jaws are 1 inch wide, and the vise is 3 in. long. For **one** new subscription, with 6 cts. extra for postage, we will mail the above free. Price 15 cts.

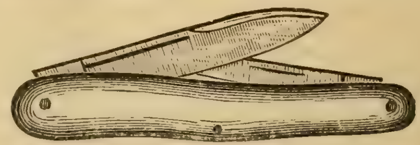


Magic Lantern. Price $1.00. This is the same kind of a lantern that sold for $3.00 a few years ago. It has a tin lamp, with glass chimney, a reflector, smoke-stack, and 2 lenses. It includes 12 slides, with 4 pictures on each, or 48 pictures in all. There is hardly any thing in the whole list that will please the little folks more than this. Directions accompany each lantern. For 4 new subscriptions at $1.00 each, we will send it free. It can not be sent safely by mail, and will therefore have to go by freight or express, with other goods.

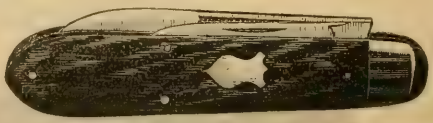
Music-Box. Price 50 cts. Postage 10 cts. extra. We have again succeeded in getting a music-box that plays one tune, which we can sell for 50 cents. They are a splendid little nstrument, and are usually sold for one dollar. For 3 new subsriptions at $1.00 each and 10c for postage we will mail one free.

Bull's-eye Dark Lantern. Price 25 cts. This is a genuine watchman's dark lantern, made of japanned tin, 4½ in. high, and 2½ in. in diameter; a bull's-eye glass, 2 in. across, and double handle on opposite side. Will throw a red, green, or white light. Will be sent free to the person sending **one** new subscriber at $1.00, with 10 cts. extra for postage and packing.

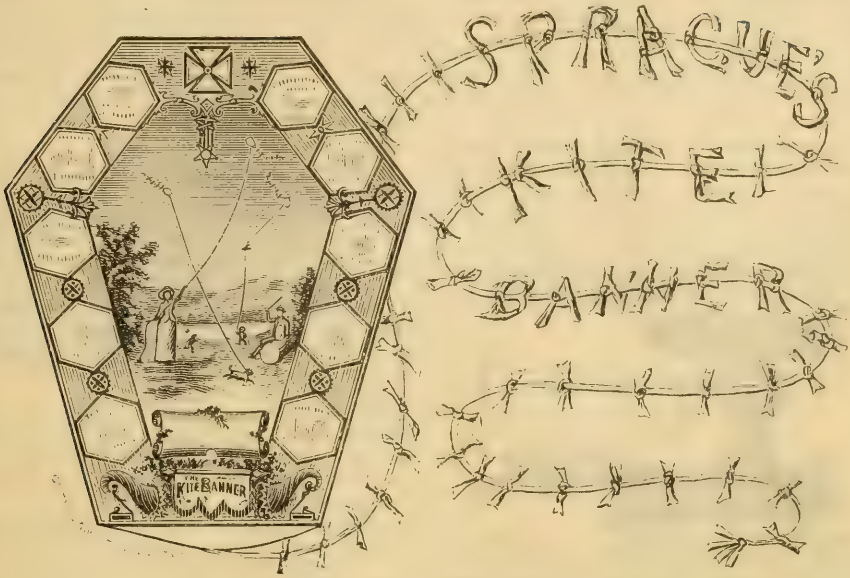




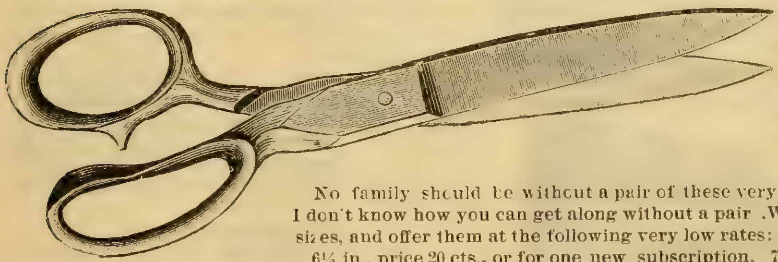
Knife, Two-Blade. This is a very good razor-steel knife, not quite as large as our 35-ct. knife. Price 25 cts. Will be sent for one new subscription at $1.00, and 4 cts. extra to pay postage.



Knife, Razor-Steel, 3½ in. long when closed. This is best hand-forged, and is so well liked that we have sold over 100 dozen of them. Price 35 cts., or we will send one free to the person sending us **one** new subscription at $1.00, and 5 cts. extra to pay postage and packing.



Kite, Complete. Price 10 cts. Postage 5 cts. Fun for the young folks. If you don't think it's fun to fly a kite, just try it. Read the artice in GLEANINGS for Nov. 1st, 1886. For one renewal, sent in *before* the time expires for which it is paid, and 5 cts. for postage, we will send a kite free; or we will send one postpaid for one new subscription at $1.00. Here is a rare chance for the boys to get a beautiful present free. Remember to send in your papa's name *early*.

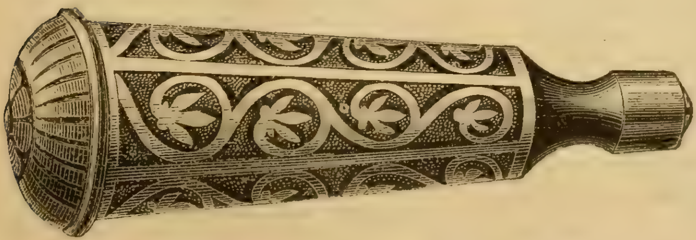


NICKEL-PLATED SHEARS

SOLID STEEL BLADES.

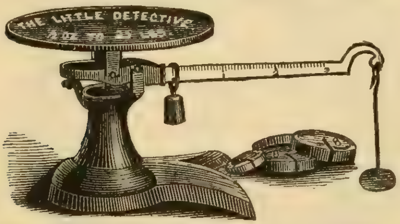
No family should be without a pair of these very fine goods. In fact' I don't know how you can get along without a pair .We have them of all sizes, and offer them at the following very low rates:

6½ in., price 20 cts., or for one new subscription. 7 inch, price 25 cents, or for one new subscription and one renewal. 8 inch, price 35 cts., or for 2 new subscriptions. 9 inch, price 50 cts., or for 2 new subscriptions and one renewal. 10 inch, price 75 cts., or for 3 new subscriptions. Postage extra, as follows: 4, 5, 6, 7, and 8 cents respectively. Bear in mind that these shears are not cheap in quality, but are hand forged, and of the best of steel nickeled over.



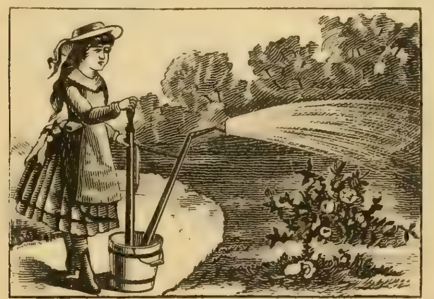
Tool-Handle, or Pocket Tool-Chest. An iron handle with 12 tools inside, which can be taken out, and any one adjusted to the handle. The tools are 6 assorted-sized brad-awls, 2 gimlets, 1 drill, 1 reamer, 1 scratch-awl, and 1 screw-driver. A very handy tool for many purposes. The adjoining cut is exact size. Price 35 cts.; postage 6 cts. extra. Will be sent for 2 new subscriptions at $1.00 each.

Carpet - Sweeper. Price $1.50. What housewife has not felt, at times, as she puts up her broom, with aching back and arms, "Oh for something to make sweeping a pleasure, and at the same time save my carpet from being brushed threadbare with a broom!" Well, a good carpet sweeper will do this; and after you have tried it you will not be without one. The sweeper we are now selling is called the "World," made by the Bissel Carpet-Sweeper Co. It has an arrangement for pouring out the dirt without stooping to open it. By placing the handle straight up and turning it on end, the door opens of its own accord; but it is held shut by the handle in any other position. We will send one for 6 new subscriptions at $1.00 each.



Little Detective Scales. A perfectly reliable scale weighing from ½ ounce to 25 lbs., making it invaluable for family use, and for weighing mail-matter. In fact, it is used largely by postmasters throughout the U. S. It has steel bearings and brass beam. Reduced price $2.00, or we will send it free for 7 new subscriptions at $1.00 each. With tin scoop, 50 cts. additional, or for 9 new subscriptions.

244-lb. Platform Scale. Price $3.50. A much larger scale, weighing from ½ oz. to 244 lbs. Has both platform and tin scoop. Has steel bearings and brass beam. Chatillon's make. We have sold nearly 200 of these the past season. We will send this scale free for 12 new subscriptions at $1.00 each. It weighs 45 lbs., boxed ready to ship.



Fountain Pump, or Sprinkler. Price $1.00. A very useful and serviceable article about any house. It will throw a stream of water ⅜ inch in diameter, to the height of 50 feet, and is very effective for putting out fires or arresting swarms. It has also a spray nozzle for watering plants, etc. It is just the thing for washing windows or whitewashing poultry-houses; 500 sold in less than a year. We will send one free to the person sending 3 new subscriptions at $1.00 each. If you want it by mail, send 60 cts. extra for postage and packing.

Parker's Fdn. Fastener. Price 25c. For fastening starters is sections. By far the most in use of any kind made. For one new subscription at $1.00, and 10c. for postage, we will mail one free.

For one old name, or renewal, sent in BEFORE the subscription expires.

Any article on the 5-cent counter of our price list that you may select, you paying postage if sent by mail. The following are a few Christmas goods, such as Santa Claus brings around for the young folks. Postage is indicated by the figure just before the name of the article.

4 | **Box of Water-Color Paints,** 24 different colors; a hair brush and mixing-saucer in a little wooden box; amusing and instructive to children.

3 | **A B C Cards,** 6½x10 inches; a stiff card, with capitals on one side and small letters on the other.

3 | **Box of A B C Blocks;** 6 wooden blocks, with the whole alphabet printed on them, and 3 pictures besides, in a neat box.

3 | **A B C of Animals,** 7½x10¼. This is a large 14-page book of colored pictures of animals and alphabetical rhymes and rebuses.

2 | **Linen A B C Books,** 10 pages, 4x5¾. Indestructible; full of pictures; just the thing for the little folks to learn their A B C's from.

4 | **Doll,** china head and limbs; will please the little girls.

2 | **Jumping Jack,** painted and striped like a circus clown.

1 | **Trumpet Balloon.** This is commonly seen at fairs, and sold for a dime.

2 | **Pocket Match-Box,** nickel-plated, and spring cover. The word "Matches" is stamped on the side.

3 | **Match-Safe, double.** Imitation of hammered brass, and a beauty for a nickel.

2 | **Sugar-shell,** brittannia; a beauty, and sold below cost at a nickel.

3 | **Butter-knife,** nickel-plated. This is another bargain; sold below cost.

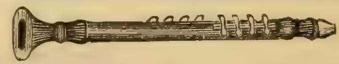
2 | **Toy Waterbury Watch;** a stem-winder; that is, by turning the stem the hands go round; chain included.

3 | **Humming Top.** This is a fancy colored tin top that hums a musical note when spinning.

REMARKS.—This will be a rare chance for the little folks to get Christmas presents. Get your papa, and your neighbor too, to give you the subscription price of GLEANINGS, and you can forward the names.

For one NEW name.

Any article you may select from the 10-cent counter, or two 5-cent articles, from our price list, you paying postage. The following are some more of Santa Claus' goods, with a few special bargains added.



3 | **Clarionet.** This is a wonder for a dime; has 8 keys, or a whole octave. You can play on it, "Home, Sweet Home," and many other melodies.

10 | **Tool-Chest.** A neat wooden box, containing a hammer, mallet, 6-inch rule, try-square, triangle, slate pencil, chalk crayon, paper-yard measure, etc.; a splendid present for a little boy.

6 | **Box of Water-Color Paints;** 15 colors, a bar of India ink, a piece of sepia, 2 crayons, blue and green, a brush, and 2 mixing-saucers, in a neat chromo wood box.

4 | **Juvenile Picture-Book,** 7½x10½; elegant colored picture story-books—Robinson Crusoe, Red Riding Hood, etc.

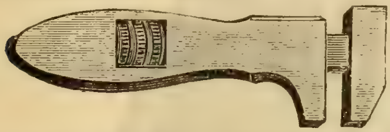
3 | **Linen A B C Book,** 14 pages, 6x7¾; larger than the 5-cent one. An indestructible juvenile primer.

6 | **Box of A B C Blocks**; 18 blocks, comprising the alphabet of colored letters, and 5 pictures; a never-ending source of amusement for a small boy.

4 | **Humming Top.** Same as the 5-cent one, but much larger.

4 | **Jumping Jack.** A much larger one than the 5-cent one.

2 | **Toy Watch.** One that ticks when you wind it; chain and charm included.



6 | **Pocket-Wrench,** adjustable. One of the best ten-cent tools in the list.

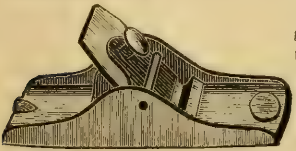
2 | **Purse.** Either **buck, kid,** or *imitation* **alligator.**

For one new name and one old one, or for three old names.

Any article you may select from the 15-cent counter, or three 5-cent articles, or one 5-cent and one ten-cent article, you paying postage. The following are a few special goods, some of which are not in the price list. Postage is indicated by the figure just before the name of the article.

| **Boys' Tool-Chest.** Same as the 10-cent one, but larger throughout.

3 | **Paper-weight.** Diamond-ground glass with a figure inside, an elephant, fly, horse, or turtle, with moving limbs, making them look for all the world like things of life.



6 | **Plane.** At first glance you might take it for a toy plane; but if you try it on a board you will find it is a plane in reality. They will sharpen a lead-pencil beautifully, trim up a woodcut or electrotype, take the corners off a rough box, reduce the width of a board, and do it all in a workmanlike and finished manner; and when they need sharpening, the bit is taken out or adjusted securely, by simply turning a single screw with the finger and thumb.

2 | **Purse, kid,** with nickel frame, ball clasps, and 2 pockets; an elegant purse.

4 | **Hand Mirror,** with bevel-edge glass, 2½x4.

4 | **Spy Glass,** or Toy Telescope, 1 draw. Will please any boy with an astronomical turn of mind.

For two new names or four old ones.

Any article on the 25-cent counter, or its equivalent on the lower counters. The following are some of the items on our counters, but not in the catalogue.

4 | **Purse,** either **buck** or **kid**; 3 pockets, lined; nickel-frame; an elegant present.

8 | **Knife-Box, Willow,** two compartments for knives and forks, and so strong that it will stand almost any amount of knocking around.

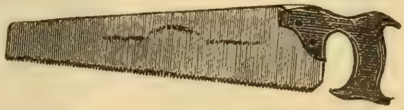
5 | **Hand-bag,** plaited straw, 8½ in. long, 3 in. wide, and 6 in. deep; very light and strong.

5 | **Wire Hair-Brush,** imitation rosewood back; a first-class article.

5 | **Lunch-Basket;** a combination of plaited straw and willow, with hinged cover and double handle; 4x7½ in. outside measure, and 4 inches deep; nothing nicer for a boy or girl to carry dinner to school in.

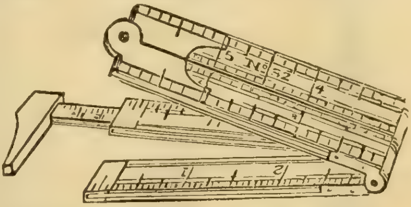
For 2 new names and one old one, or for 5 old names.

Any article on the 35-cent counter, or its equivalent on the lower counters, you paying postage as before. The following are some special goods.



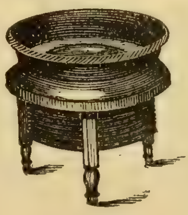
20 | **Carpenter's Hand-Saw,** 18-inch, cast steel. Who ever heard of a good steel saw, a foot and a half long, for such a small sum of money?

3 | **Rule, 1-foot Caliper,** brass-lind.



3 | **Rule, 2-foot, 4-fold,** brass-lined.

3 | **Rule, 2-foot, 6-fold;** can be put into the vest pocket if desired.



5 | **Magnifier,** 2 lenses on 3 brass feet.

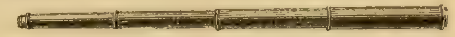
3 | **Sugar-shell,** triple plated on nickel.

3 | **Butter-knife,** triple-plated on steel. Both the above are Rogers Brothers' best.

For 3 new names and one renewal, or for 6 renewals.

Any article from the 50-cent counter, or its equivalent from the lower counters, you paying postage if sent by mail.

| **Hand-Mirror,** plush back, and nickel folding handle; mirror is a 4×6 bevel-edge plate. This has been sold for $1.00, but we can sell it for 50 cents. Nothing nicer for a present.



6 | **Telescope.** Focal length, 30 inches; closed, 11½ inches; has 4 lenses, and magnifies about 10 diameters. This is a wonder for the money, and we will send it free for **2 new subscriptions.**

For four new names or eight renewals.

Any article from the 75-cent counter, or its equivalent from the lower counters, you paying postage, if sent by mail.

| **Nickel Clock, "Whistler."** This is an excellent time-keeper; and for one more new name you may have one with an alarm. Price $1.00 without alarm; $1.50 with alarm.

For five new names or 10 renewals.

Any article on the $1.00 counter, you paying postage if sent by mail.

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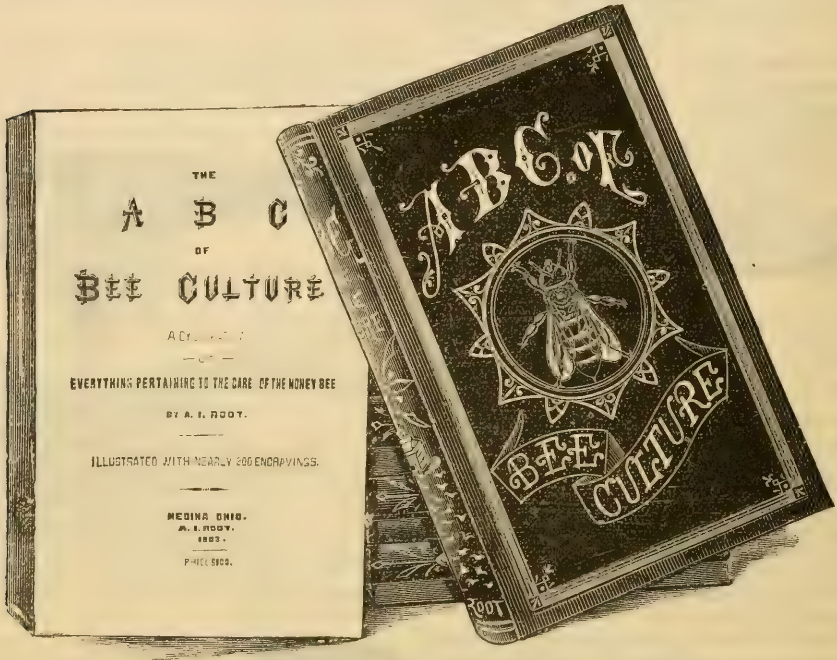
For 3 new subscriptions to GLEANINGS at $1.00 each, and 15 cents to pay postage, we will send a cloth-bound A B C of Bee Culture free.


THE
A B C
OF
BEE CULTURE
EVERYTHING PERTAINING TO THE CARE OF THE HONEY BEE
BY A. I. ROOT.
ILLUSTRATED WITH NEARLY 200 ENGRAVINGS.
MEDINA OHIO.
A. I. ROOT.
1883.
A B C OF BEE CULTURE
ROOT

AVERAGE SALE, NOW 400 PER MONTH.

THIS is a cyclopædia of 330 pages, and is beautifully illustrated with about 250 engravings, many of them full page. Some of the latter embrace a view of the apiaries and portraits of some of our largest and most successful bee-men. The whole work is elegantly bound in cloth, 7 inches wide, 10½ inches long, and embossed on side and back in gold. It would be an ornament on the center-table of any bee-keeper's home.

Especial care is used to explain in detail *how* Frames, Sections, Hives, Extractors, and other fixtures, are made and put together, the process being made clear by the use of many engravings. The comparative value of the different Races of Bees is fully discussed. Much is said of the many valuable honey-plants. Considerable space has been devoted to the subject of the Production, Shipping, and Sale, of Comb and Extracted Honey. The articles on Wintering contain the best that is known on that subject. Transferring, Queen-Rearing, Artificial Swarming, and other manipulations, are treated so that we hope our friends who are beginners may have no trouble in fully understanding how to operate.

The whole work is brimful of contagious enthusiasm, and the style so simple and instructive, that even the more advanced bee-keeper as well as the beginner may find pleasure and profit in its perusal. None of the matter is electrotyped, but all is kept in standing type, so when any new thing of importance comes up it can be inserted in its appropriate place. Its quick sales have warranted us in giving it frequent and thorough revisions. The present edition is greatly enlarged and improved, so that it is nearly twice the size of the one first issued, and no bee-keeper having an original copy can afford to be without this latest edition.

Since the first issue in 1877 its average sale has been over 200 copies per month, and the sale has been steadily increasing from the first. Prices: Neatly and strongly bound in cloth, by mail, $1.25; by express or freight with other goods, $1.10. In paper covers, by mail, $1.00; by express or freight, with other goods, 88 cents.

From the above prices there can be no deviation for any one; but each purchaser, after he has paid full retail price for one book, may order the cloth-bound to any of his friends on payment of $1.00, or the paper cover at 75 cents each. This discount we give to pay you for showing the book, explaining its worth, etc. To those who advertise A B C books in their price-lists and circulars, a discount of 40 per cent from retail prices will be made, and this discount will be made to all booksellers and newsdealers. To any one who purchases 100 at one time, a still further discount will be made, to be given on application, and the 100 may be made up of part cloth and part paper, if desired. Purchasers are requested not to sell single books at less than the regular prices, although they may sell two or more at any price they think proper; or the A B C may be clubbed with any other book or periodical, at such prices as the agent thinks proper.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—In consequence of a large stock of comb honey on this market, prices will have to be reduced accordingly. We quote present prices as follows:

Fancy white, 1-lb. paper boxes or glassed	13
" " 1-lb. unglassed	12
" " 2-lb. glassed	10@11
Off grades 1@2c per lb. less.	
California comb	8@10
Fancy buckwheat, 1-lb. sections	8½@9
" " 2-lb. "	7½@8
Extracted, white clover, none on the market.	
" California 60-lb. tins	5@6
" buckwheat in kegs or bbls.	4@5
Beeswax	21@23

Fancy white in paper boxes and in glass are in better favor here than unglassed goods, hence the difference in price.

McCAUL & HILDRETH BROS.,
Dec. 7, 1836. 34 Hudson St., Cor. Duane St.

MILWAUKEE.—*Honey.*—The demand for honey is only fair, and values remain about the same yet. We continue to quote:

Choice white 1-lb. sections	12½@13
" " 2-lb. "	11@12½
" " in kegs and one-half bbls.	6½@7
Dark, bbls. and kegs	6@6½

Dec. 7, 1886. A. V. BISHOP,
142 W. Water St., Milwaukee, Wis.

CHICAGO. — *Honey.* — Market very quiet; sales (when any are made) are in a small way. Prices are nominal, and really without change, which is attributable to the lack of demand. Offerings of honey are distributed among many houses.

Beeswax, 22@25 cents.

Dec. 10, 1686. R. A. BURNETT,
161 So. Water st., Chicago, Ill.

ST. LOUIS.—*Honey.*—All kinds in abundant supply, and very low. The market seems to tend to lower rather than better prices, as the season advances. Choice white-clover, comb, 1-lb. sections, 12@13; extracted in cans 5@6c. Bbls. 4½@5; amber-colored honey and California white sage, in comb, sections, 10@11c. Broken comb, 7@9c. *Beeswax*, selected, 23@25; as it runs, 20@21.

W. B. WESTCOTT & CO.,
Dec. 11, 1886. 108 and 110 Market Street.

CLEVELAND.—*Honey.*—There is a slight improvement in the demand for honey, but no change in prices since our last quotations. The best white in 1-lb. sections sells at 13c, with an occasional sale at 14c; 2-lbs., white, 11@12. Dark, 1-lb., 10c. Extracted, slow at 6c. *Beeswax*, 25c.

Dec. 13, 1886. A. C. KENDEL,
115 Ontario St., Cleveland, O.

BOSTON.—*Honey.*—No change in prices; demand fair.

BLAKE & RIPLEY,
Dec. 11, 1886. 57 Chatham St., Boston, Mass.

DETROIT.—*Honey.*—The market continues to be overstocked; sales slow at last quotations; viz., 11@12½c for white comb honey.

Beeswax, 23c. M. H. HUNT,
Dec. 11, 1886. Bell Branch, Mich.

FOR SALE.—12 crates, of 48 lbs. each, all white-clover and basswood honey, which I will take $6.00 per crate for on board of cars here. Who wants it? Money sent with order. H. B. MORRISON,
Fayette, Iowa.

FOR SALE.—3000 lbs. comb honey, very fine; boxed ready to ship; want 14c, crates thrown in. Who will buy it? JOHN A. WILLIAMSON,
Lodge, Piatt Co., Ill.

FOR SALE.—2000 lbs. best clover honey in Root's "raised-cover pails." One set, 30½ lbs. $2.50; 4 sets, 122 lbs., $9.25. Boxed, they ship same as bbls.

Address OLIVER FOSTER,
Mt. Vernon, Iowa.

WANTED.—A quantity of extracted clover honey. Write lowest price, delivered here. H. BARBER,
Adrian, Mich.

WANTED.—A few hundred pounds of linn or clover first-quality extracted honey, put up in square cans, 2 to crate. How cheap can you sell it on board cars? S. S. LAWING,
Henderson, Webster Co., Mo.

FOR SALE.—1 bbl. of 550 lbs. net, and 5 kegs of 115 lbs. net each. All of which is No. 1 white-clover honey, well ripened. Will take 6½c per lb. for bbl. and 7c for kegs. Sample sent for 2-cent stamp.
R. J. BARBER, 818 E. Washington St.,
Bloomington, Ill.

GOOD NEWS FOR DIXIE!
SIMPLICITY HIVES,
Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.
Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*
J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column.
3btfd

CLUB-LIST.
Alsike Seed,
Poultry, Eggs,
Bees, Queens,
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Raspb'y and
Str'y Plants,
Basswood-Trees,
&c., &c.
We give club rates on single subscriptions. Our prices are below the lowest. Best alsike now, at retail, $7. Two sittings of eggs in season, $1. Every thing good quality and low price. Large size 16-page catalogue ready, and free.
C. M. GOODSPEED,
Thorn Hill, N. Y.

IT PAYS
TO ORDER GOODS EARLY.
Send in your name and get our new catalogue of HIVES, SMOKERS, SECTIONS, COMB FOUNDATION, &c., and see our discounts on goods for January, 1887. I tell you, it pays to order early. Address
24-1-2 3d R. B. LEAHY, Higginsville, Mo.

CHEAP! CHEAPER! CHEAPEST!
BEE-HIVES
ONE-PIECE SECTIONS, CRATES, SHIPPING-CASES, FDN., EXTRACTORS, UNCAPPING-KNIVES, BEE-FEEDERS, WIRE NAILS, AND METAL CORNERS.
Please send your Orders Early Before the Rush Comes.
24-2 4d **B. J. MILLER & CO.,**
Send for Price List. **Nappanee, Ind.**

COPPER BATH-TUBS.

WE have found the manufacturers of the copper bath-tubs, referred to on page 884, GLEANINGS for Dec. 1, and are prepared to furnish a tub of 10-oz. copper, 5, 5½, or 6 ft. long, at an even $12.00, f. o. b. in New York. The regular price is $13 75. They are made in a neat wooden box, ready for use, and they can be set in the corner of your bath-room. They are furnished with a brass plug in the bottom, to let the water off. A. I. ROOT, Medina, O.

Youth's Companion (new) and GLEANINGS, 1 year, both for	$2.00
Am. Agriculturist and GL's 1 yr., both for	1.90
Chicago Inter-Ocean and GL's 1 yr., both for	1.70
Any two bee-papers of America for 1 yr.	1.65
N. Y. World or Boston Globe and GL's 1 yr.	1.65

To avail yourselves of these rates, name this paper and ask for them. For address, see C. M. Goodspeed's Adv. elsewhere in this issue.

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FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 22tfdb

A. F. Stauffer & Co., Sterling, Ill.

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We are prepared to supply you with sections for the coming season at bed-rock prices. Write us.

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WATERTOWN, WIS.

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

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4-3db

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

4 H.-P. ENGINE FOR SALE.

A Bargain for the man who is in need of a First-Class Engine and Boiler.

This is one of B. W. Payne & Son's Eureka engines, the same that we advertise in our catalogue. It has run 3 months since it was new; has had a 10-foot galvanized-iron smoke-stack added, and is in perfect running order. The man who is holding it had to put in a larger one to meet the demands of his trade. The price of a new engine and boiler complete, no stack, is $275.00; but to make a quick sale we will sell this one with the stack for $225.00, free on board cars at Higginsville, Mo.

A. I. ROOT, Medina, Ohio.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O., J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., G. B. Lewis & Co., Watertown, Wis., P. L. Viallon, Bayou Goula, La., and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary** and *unsolicited testimonials*, from as many bee-keepers, in 1883. *We guarantee every inch of our foundation equal to sample in every respect.*

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

WONDERFUL!

Owing to the reduction in subscription price to 25 Cents, on and after Jan. 1, 1887, we are able to make the following wonderful offer. We will send

BEE-KEEPERS' MAGAZINE

—AND—

GLEANINGS

One Year for $1.10.

For only 10 cts. more than GLEANINGS you can obtain the BEE-KEEPERS' MAGAZINE, whose price this year was $1.00. Send for sample, and see what a splendid magazine we publish. Sample free.

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22tfdb BARRYTOWN, N. Y.

THE CANADIAN BEE JOURNAL.

WEEKLY, $1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Beeton, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

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To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2tfd **Hartford, Washington Co., Wis.**

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XIV. DEC. 15, 1886. No. 24.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent TO ONE POSTOFFICE.

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DRONE COMB.

W. Z. Hutchinson Gives us Some very Valuable Points from Experience.

HOW TO HAVE IT BUILT IN THE BROOD-NEST, AND HOW NOT TO HAVE IT BUILT.

ON page 746 Cora Major gives a report of some very valuable experience in hiving swarms in empty brood-chambers. Four colonies built no drone comb; six built from three to six inches square of drone comb; two had one-half drone comb; three, one-fifth drone comb; while one had all drone comb and *lost their queen.* I wonder if the order of the last hive ought not to be reversed; that is, they lost their queen and *then* built all drone comb. I wish she could have told us the ages of the queens, as this is an important point. My only trouble with drone comb has been when the queens were old; and in such instances it is *possible* that the use of drone fdn. in the sections *might* remedy the difficulty. Almost all who have tried hiving swarms upon empty frames have been pleased with the result, with the exception that, in many instances, the bees built too much drone comb. As this is the principal objection, it is worth while to try to learn *why* bees build drone comb.

They build drone comb either to rear drones in it, or to enable them to store honey more rapidly. The question would naturally follow, *When,* and under what condition, do bees rear drones? They raise them only when they expect there will soon be queens to mate with them. Before swarming, bees always rear drones; i. e., if allowed to do so. If allowed to build comb at this time, it is always drone comb. Not only this, but drones are always reared in it *immediately.* I believe I have mentioned before in GLEANINGS, that one year, just before swarming began, I inserted an empty frame in the center of each of 25 colonies, and every frame was filled solid full of drone comb, and drones reared in almost every cell. When these colonies swarmed, many of the swarms were hived upon empty frames, and, with the exception of two swarms that had old queens, these swarms built no drone comb. Before the bees swarmed they knew that drones must be provided for the fecundation of the young queens. After they have swarmed they have a fertile queen, and no disposition to swarm; hence no drones are reared, *unless* the queen is old and the bees have in mind the superseding of the queen. In the old hives the drones hatched, and the bees filled up the frames of drone comb with *honey.* Although the drone combs were in the center of the brood-nest, not another drone was reared in them that season. If bees are allowed no drone comb before swarming they will rear drones in worker-cells. After they have swarmed they have no desire for drones, unless they are about to supersede their queen. Many have reported that their newly hived swarms built drone combs when the queens were *not* old. True; but look 'e here; *they didn't raise any drones;* they filled the drone comb with honey, which proves that they did not build drone comb for the purpose of rearing drones. Almost all who have reported trouble from the bees building too much drone comb have also reported that the bees stored honey in the drone comb; and when bees do this it is because they are gathering honey rapidly, and they can store it faster by building store or drone comb than they can by building worker comb; hence we must inquire *why* the bees store the honey in the brood-chamber instead of in the surplus-apartment. In my opinion, it is because sufficient inducement, or room, is not given in the supers. At the convention at Indianapolis, Mr. Bingham said that bees hived in an empty brood-nest of ordinary size would occupy and *fill* the brood-nest before they would go to work in a super furnished with fdn., and placed over said brood-nest. I do not feel inclined to take issue with Mr. Bingham, as I have never experimented in exactly that manner, and I well know that bees delight to work in a body. As I have many times explained, however, I do not hive my swarms in a brood-nest of ordinary capacity, but in one contracted to five L. frames, or to one section of Mr. Heddon's new hive, hence some of the bees *must* enter the supers. Another thing: I never put on supers only, with fdn. alone. The supers are *always* removed from the old to the new hive, and there are usually 56 one-pound sections in these supers, sometimes as many as 84, and the combs are in all stages of growth, from fdn. upon which the bees have just commenced work, to the finished sections. Not only is there an abundance of room in the supers, but the half-finished combs are a great attraction for the bees, as they furnish a place for the bees to store the honey they have brought with them, and only a little work is required to make room in them for the honey that is gathered. If these do not furnish sufficient room, another case of sections furnished with fdn. is placed between them and the brood-nest. In this way the bees are induced to *begin* storing honey in the supers; and where they begin, there they are apt to continue; thus there is no necessity, no *desire*, to build drone comb in the brood-nest in which to store honey. A queen-excluder keeps the queen below; and as soon as any comb is built she is ready with her eggs; and brood once started in a comb, it is continued to the bottom of the comb. The result is, that nearly all the honey goes into the super while the brood-nest becomes a brood-nest indeed.

Some one has reported, that putting the frames only 1⅜ inches apart, from center to center, would prevent the construction of drone comb. It may have a tendency in that direction, but it will not entirely prevent it when the bees *wish to raise drones;* at least, that is the distance apart I space my frames; and when the queens are old the bees will build some drone comb and raise drones in it. At the Indianapolis Convention Mr. Poppleton said this question was discussed in a lively manner at the Iowa State Convention held a short time previous; and of the dozen, or such a matter, who spoke upon the subject, five-sixths preferred fdn. to empty frames, as they not only were troubled with an excess of drone comb, but actually secured *less* honey when no fdn. was used. I can not understand this. My experience has been exactly the opposite. I do not claim to be any smarter than a great many "whole families," but I can not help wishing that I might be present when these brethren are having so much trouble. Mr. Poppleton suggested that there might be something in locality. With a slow yield, success would be more certain. There may be something in this; but we had a splendid flow last year from clover, and no trouble from drone comb. Perhaps some one will want to know what to do with old queens, if it is to their age that the building of drone comb is attributable. Candidly, I don't know. Of course, queens can be killed before they are old, and young queens introduced in their places, but I don't approve of this plan. It would necessitate considerable labor—more, I think, than would be profitable, considering the small amount of drone comb that will result from this source. It must be remembered, that queens are superseded at any time during the working season, and it is only when it occurs immediately after swarming that drone comb will be built.

I see friend Doolittle's "separator" article on page 939 calls for something from myself. This subject calls for more than a passing notice. To do it justice would make this article too long, so I will give my views in a future number.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich., Dec. 6, 1886.

Friend H., as my mind took in point after point in the above paper, I recalled to mind many facts of past experience to corroborate all you say; and in view of the above I am ready to admit that more surplus honey can be obtained by making the bees build their own combs in the brood-chamber, than by giving them frames filled with foundation. There are so many points to be observed, however, I am afraid many of the friends will be too hasty or too heedless to succeed as you succeed; but when it comes to a matter of dollars and cents, I think they will eventually learn to do it. It seems to me, however, there is going to be considerable danger of starving your bees after the honey-flow is over, if you don't look sharp, especially in localities like our own. Where we so seldom have honey-flows in the fall of the year, our bees are consumers, and producers to but small extent. The progressive bee-keeper, however, ought to be able to feed his bees promptly as soon as the flow of white honey is over, and I for one am not a bit afraid to be seen buying sugar to prepare our bees for winter. The great point seems to be to get all the marketable honey in surplus sections; and to do this, it seems to me quite likely the shallow frames are the ones to use.

THE DULL PROSPECTS FOR BEE CULTURE AND OTHER INDUSTRIES.

IS THERE A REMEDY?

IN the *Ohio Farmer* for Dec 4, there appears a short editorial in regard to the article in our issue for Oct. 15, page 812, on the low price of honey. I make the following extract from the remarks:

> This man took 600 gallons. If this is his year's crop, and he keeps four men at work, at a total cost of $3.00 a day, he ought to have at least $2 00 a gallon for his honey. He can't possibly get over one-fourth that price, net. He certainly *is* "in the ditch," and we don't wonder that Mr. Root calls upon the brethren to help him out.

May I call the attention of our friends of the *Ohio Farmer* to the fact that our Texas friend says he keeps four men at work, at a cost of $3.00 per day, and yet secured only 600 gallons of honey? If it takes four men 300 days in the year to secure such a crop of honey as mentioned above, I agree with our friend, that he is in the ditch—in fact, we are *all* in the ditch. But I am glad to be able to say that it is not true. Six hundred gallons of honey would be, even if it were of the very *best* quality, only about 7200 lbs., and we have hundreds of bee-keepers—yes, I think thousands—who can do all the work to secure a crop of honey of the above size, without any help whatever—not even so much as calling on their wives—yes, and have spare time besides. It seems to me the greatest trouble we have to face at the present day is getting into a fashion of calling an amount of work a day's work, that might be done by a good, energetic, go-ahead man in a couple of hours. A man may occupy the whole of a bright sunshiny day in doing his chores, and puttering around about something that really amounts to almost nothing at all. After he has got a knack of doing this he can readily find hired help that will do the same thing; in fact, they are pretty sure to pattern after their employer. Now, this course will kill any business. I do not mean to reflect on our Texas friend, for I do not know any thing about him. Possibly he may have hives so unwieldly, and so badly arranged, that it takes a great amount of time and expense to get the honey away from them. As this question is one of the vital ones before us, I should be glad if the friends, in sending their reports, would tell, as near as possible, how much it is worth to secure a crop. For instance, if you report having received six or seven thousand pounds of honey, tell us about how many days' work it took to get it, and what your time is worth per day, then we shall know where we are. Friend France, in his excellent article in this present issue, tells about taking from two to three thousand pounds of honey per day. Will he tell us how much per pound it cost to take it out of the hives, and put it into barrels ready for market? There is certainly a screw loose somewhere when we have reports like the one on page 812, and commented on on page 927, by friend Muth, especially if it took four men every working day in the year to get six hundred gallons of honey. Perhaps our friend had "the blues," and forgot to state that he had a large plantation besides, and the four men were kept a principal part of the time in caring for it. Mr. *Ohio Farmer*, wherever a farmer or dairyman or horticultural man can make a living, a bee-man can also.

TEASEL AS A HONEY-PLANT.

WILL IT PAY BEE-KEEPERS TO RAISE THEM?

THIS season, teasel did not yield much honey until basswood had entirely ceased. For that matter, I am not sure basswood gave me any honey this year. It was very little if any. When the basswood was all gone, and teasel had been in blossom about a week, I took two colonies for the purpose of testing the teasel-plant as a honey-yielder. From each stock I took away every thing in the shape of honey, brood, or comb. To No. 1, I gave 5 frames of old empty comb, and as many 1-lb. sections (filled with fdn.) as I could get on. In 17 days (or about that) they had filled 48 sections, and capped almost all of them all up nice. I took one frame of sections (8) that were all done, and replaced them with empty ones, some time before the 17 days were up. These were drawn about two-thirds out, but not capped at all, and are not counted in with the 48. Besides this they filled the five frames I gave them, with brood and honey.

Colony No. 2 I tiered up with empty combs, and saved their honey to give stocks to winter on, so I might test it there also. In quantity they produced about equally with No. 1. Teasel honey, when first gathered, is very thin, and requires a good deal of evaporating before it is capped over; but when allowed to ripen fully I know of no other honey that is its equal.

At the time I was testing with my two stocks, my friend G. M. Doolittle repeatedly told me his bees were getting scarcely a living. This proves to me that bees can not work profitably where they are obliged to fly long distances for their stores. Mr. D. lives about two and one-half or three miles south of me, and there were but few teasels after going one-half mile south of my place, making virtually no teasels nearer Mr. D.'s apiary than two miles; while within one and one-half miles I believe my bees had one hundred acres.

One can easily tell when bees are working on teasel by the white dust that adheres to them. The honey is pure white, and in market generally passes for basswood, though where known it is preferred. Whether teasel could be profitably grown for honey alone, is a question. I do not believe that any thing less than 20 acres would amount to much to an apiary of 100 colonies; but possibly it might do to sow seed in waste places, or on broken land, and let Nature do her work. As a plant, if not dug up, it will remain and grow until it gets large enough to run, even if it is five years. If desired, they are easily killed, either by plowing or mowing before the seed ripens.

C. M. GOODSPEED.

Thorn Hill, N. Y.

"THE QUEEN OF THE HOME."

HOW WE CAN LIGHTEN HER LABORS.

THE following kind letter from Dr. Miller was not intended for publication, as you will see; but as it comes so directly in line with Mr. Terry's and Prof. Cook's recent articles upon home conveniences we give place to it here, with the hope that it may work good in the home.

I want to thank you for advertising and selling such a fine carpet-sweeper. We have not been without a carpet-sweeper in the house for a good many years. One or two have given out, and the last one has been lying idle for about five years, a serious fault being that it too closely resembled a reaping-machine in the noise it made. But this new one I bought of you so much excels any thing previously used, that my women-folks are very enthusiastic in its praise. You are so much given to sticking out in every direction, expected and unexpected, that I wonder you have not made a vigorous attack upon all your readers who have wives not yet provided with a good carpet-sweeper. Few husbands realize, I think, how much *real hard work* their wives have to do in the way of sweeping; and if they knew the difference a good carpet-sweeper makes, there are few of them who care so little for their wives' comfort as to let them go on the rest of their lives with aching arms, daily wrestling with a broom.

I haven't time just now to write any thing for GLEANINGS; but if I had, I don't know but I should try in some way to wake up the men on this sweeping business. May be you can do it. Call their attention to the number of hours spent in sweeping; get them to try it themselves; tell them how much fine dust, bits of wool, etc., are breathed into the lungs when the broom is used, and which the carpet-sweeper keeps all to itself; the labor saved in dusting, etc., not forgetting to let them know that a broom must still be used in corners which the carpet-sweeper can not reach. If they can not get at home such a one as you sell, they had better pay heavy carriage, and buy one from you; for many of them are only a nuisance. I think I paid $3.00 or $4.00 for one not half so good as yours.

That 10-cent honey-knife is the finest thing I ever used for cutting out bits of comb, etc., while the colony is in the hive. C. C. MILLER.

Marengo, Ill.

Friend M., I am very glad to be able to say to you and the other readers of GLEANINGS, that the manufacturers have made us such an offer on carpet-sweepers for the coming year, providing we purchase a very large quantity during the dull season, that we can furnish a machine, greatly improved, for only $1.50, instead of $2.00, as heretofore.

THE LAW RELATING TO BEES.

SOMETHING FROM ONE OF OUR LEGAL FRIENDS IN REGARD TO FORMER DECISIONS, ETC.

THERE are no statutes and but little law relating to bees as bees; therefore in treating of the subject we must employ such of the analogies as are to be found in the principles relating to beasts and animals.

OWNERSHIP.

The original source of ownership in law for these and all other things of property, is found in the first chapter of Genesis, the 26th verse, whereby man is given "dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth." This is the first great law of property.

Following this, ownership in bees was first, and still is, acquired by occupancy. Occupancy gave the first (human) right to lands, movables, and bees, and is the natural rational method, *a priori*, of acquiring title in them; and upon this principle of universal law this title continues so long as occupancy continues.—*2d Kent Com., 374.* This is the basis of obtaining title to wild bees, by first reducing them to our possession, and subsequently keeping them in our custody.

The other mode, of getting title through the operation of contract of sale and purchase, is too familiar to need description; yet we find a few decisions, mainly in the New York courts, relating to this article of property, from which we extract, by brief quotations, the special points decided:

"Although an unreclaimed swarm of bees belongs to the first one who hives them, yet if a swarm fly from the hive of a person, his qualified property continues as long as he can keep them in sight, and has power to follow them."—*15 Wend., 550.* "And if they are taken or destroyed by another, although on his own land, an action of trespass (or trover) may be maintained against him therefor."—*1 Root, 209; 7 John., 16.*

"*Wild bees*, in a bee-tree, belong to the owner of the soil where the tree stands." "Though another discover the bees, and obtain license from the owner to take them and mark the tree with the initials of his own name, this does not confer the ownership upon him until he has taken actual possession of the bees." "If he omit to take such possession, the owner of the soil may give the same license to another, who may take the bees without being liable to the first finder." "Both parties having license, the one who first takes possession acquires the title."—*1st Cow., 243.*

If the first licensee *pay* for the bees, he would have become the owner, as that event would have changed the ownership of the property, as well in a tree as if they had been in a hive.

AT SWARMING-TIME.

We may not only reclaim our bees so long as we keep them in sight, but may follow them upon our neighbor's land, and retake—being responsible to him for the *actual* damage—no more.—*14 Wend., 237.*

DAMAGES FOR BEES IN HIVES.

As this is the most fruitful source of discussion and contention against keeping bees, we cite all the authorities at hand, beginning at the earliest decisions, and ending with the latest.

"An injury received at *night* is only at the fault of the party injured."—*M. & M., 505.*

"Vicious animals may not be placed in or on the approaches to the house, so as to injure persons exercising a lawful purpose in going along those paths to the house."—*19 Eng. Com. L., p. 394.*

"*Posted notice* is advisable, and will put persons upon their guard, and make it at most their own misconduct if injury comes of hitching teams, etc."—*Chit. Pl., 82.*

"Owners of private property are not liable for injuries occurring, when those injured were upon premises without permission, and not on business, etc."—*25 Mich., 1.*

WORKING BEES ABROAD, IN STORES, ETC.

In case of grocers and others dealing in honey and other sweets, which naturally attract bees, and by means of which the bees are destroyed, the owner of the bees may as well have action for injury to his bees, as for the merchant to claim indemnity from their annoyance, or pay for his sweets." "Where an injury, of which a plaintiff complains, is the result of his own fault or negligence (in unnecessarily exposing his wares), or of the negligence or fault of both parties, without intentional wrong on the part of the defendant, no action can be maintained."—*2d Mich., 259; 10, id., 193.*

IN FIELDS, VINEYARDS, ETC.

In responding to allegations of injury in this branch of the subject, the right "to recoupe" (to cut again) is applicable; and "in law this signifies the right and the act of making a set-off."—*Bouv. Dict., 430.* In law this is regarded as an equitable right, and it would afford a fine case of litigation to put such a case into a court of equity, and establish as a fact that more benefits were done by bees to the blossoms of trees, vines, and grain, by the distribution, etc., than in the supposed injury to the mature fruit; yet such is the spirit of equity and the office of recoupment.

INJURIES TO ANIMALS, ETC.

Upon this point, the latest, fullest, and best adjudication to be found is in the case of *Earle vs. Van Alstine* (*8, Barbour's Reports, 630*), being the unanimous decision of the Supreme Court of New York as announced by Justice Samuel L. Selden. In this cause the complaint alleged that the defendant was the owner of fifteen hives of bees, which he wrongfully kept in his yard, adjoining the public highway, and that the plaintiff's horses, while traveling along the highway, and passing the place where the bees were kept, were attacked and stung by the bees so severely that one of them died and the other was injured, etc. The answer denied the charge contained in the complaint. Trial was had in justice's court, and judgment given plaintiff for $70.25, and cost. This judgment was reversed in the County Court, and from this judgment plaintiff appeals to the Supreme Court. The two questions involved, as stated by the court, were:

"1. Is any one, who keeps bees, liable at all events for the injury they may do?

"2. Did the defendant keep these bees in an improper manner or place, so as to render him liable on that account?"

After a full statement of the case, and a critical examination of the authorities, the judge says:

"These authorities seem to me to point to these conclusions: 1. That one who owns or keeps an animal of any kind becomes liable for any injury the animal may do, only on the ground of some actual or presumed negligence on his part. 2. That it is essential to the proof of negligence, and sufficient evidence thereof, that the owner be shown to have had notice of the propensity of the animal to do mischief. 3. That proof that the animal is of a savage and ferocious nature, is equivalent to proof of express notice. In such cases notice is presumed.

"Having shown, then, as I think, clearly, that the liability does not depend upon the classification of the animal doing the injury, but upon its propensity to do mischief, it remains to be considered whether bees are animals of so ferocious a disposition that every one who keeps them under any circumstances does so at his peril. If it is necessary for the plaintiff to aver and prove the mischievous nature of the animal, nothing of the kind was done in this case; but if courts are to take judicial notice of things so familiar to man as bees, which, I suppose, they would be justified in doing, then I would observe, that, however it may have been anciently, in modern days the bee has become almost as completely domesticated as the ox or the cow. Its habits and its instincts have been studied, and through the knowledge thus acquired it can be controlled and managed with nearly as much certainty as any of the domestic animals; and though it may be proper still to class it among the *feræ naturæ* (wild by nature), it must nevertheless be regarded as coming very near the dividing line; and in regard to its propensity to mischief, I apprehend that such a thing as *serious* injury to persons or property from its attacks is very rare, not occurring in a ratio more frequent, certainly, than injuries arising from the kick of a horse or the bite of a dog.

"There is one rule to be extracted from the authorities to which I have referred, not yet noticed; and that is, that the law looks with more favor upon the keeping of animals that are useful to man than such as are merely noxious and useless; and the keeping of the one, although in some rare instances it may do injury, will be tolerated and encouraged, while there is nothing to excuse the keeping of the other. In the case of *Vrooman vs. Lawyer* (*13 John., 339*), the court says: 'If damage be done by any domestic animal *kept for use or convenience*, the owner is not liable to an action without notice' (of their being vicious, etc.). The utility of bees, no one will question; and hence there is nothing to call for the application of a very stringent rule to the case. Upon the whole, therefore, I am clearly of the opinion that the owner of bees is not liable at all events, for any accidental injury they may do.

"The question is still left, whether the keeping of these bees so near the highway subjects the defendant to a responsiblity which would not otherwise rest upon him. I consider this question as substantially disposed of by the evidence in the case. It appears that the bees had been kept in the same situation for some eight or nine years, and no proof was offered of the slightest injury ever having been done by them. On the contrary, some of the witnesses testify that they had lived in the neighborhood, and had been in the habit of passing and repassing frequently, with teams and otherwise, without ever having been molested. This rebuts the idea of any notice to the defendant, either from the nature of the bees or otherwise, that it would be dangerous to keep them in that situation; and, of course, upon the principles already settled, he could not be held liable. The judgment of the County Court must be affirmed. Judgment affirmed."

See this case in *Thompson on Negligence, Vol. I., pages 182-'8*, and authorities here cited.

The foregoing is probably sufficient to elucidate the principles of law specially applicable to the peculiarities of these useful insects; leaving the other more common principles of the law to be applied as in other matters. Before quitting the subject, however, we must remark that it is the best of wisdom in such matters, as in all others, to avoid litigation wherever and whenever substantial justice can be received or done, without the intervention of the courts; for the law is, at best, hardly more than a two-edged sword—*cutting both ways.*

HARMON SMITH, ESQ.,
Ionia, Mich. Attorney and Apiarist.

The above, although it does not touch the question very much of bees and grapes, serves to give us something of an idea of what may be expected where we go to law to settle these differences; and I heartily indorse the concluding words of friend Smith, reminding us that whoever decides to go to law will probably find it a two-edged sword indeed, and that *both parties* will probably get cut more or less.

HOW TO WIN.

BY ONE OF OUR BEE-KEEPING FRIENDS.

A RECENT number of *The Northwestern* contained a very appreciative notice of a royal book by a royal woman —"How to Win," by Frances E. Willard. The writer carefully read the chapters of this book as they appeared in the *Chautauquan.* They were of deep interest to her, not only because they were prepared by a dearly loved teacher, but also she herself wished to learn "how to win." It seems to her that Miss Willard, in telling the girls "how to get on in the world," did not emphasize one fact strong enough. She did not speak of the little paths of opportunity leading directly from home to broader avenues. She did not tell them that, before they tried to climb into teaching, telegraphy, type-writing, medicine, law, journalism, or literature, it would be well for them to find out whether the first rounds of the ladder to success did not rest just beneath or just above the sod of their own dooryards.

The windows of the room where these words are written look into a strange little city, where a certain girl of our acquaintance has found her kingdom. Grass grows thick and unbroken in the narrow streets which never echo to the whistle of the locomotive, the jingle of a street-car bell, or the roll of carriage-wheels. The small, queer houses differ in size, but in one thing they are all alike; they have no windows and only one door. The people who hourly pass from or enter these doors are the most industrious on earth. In spite of the fact that they are able to wear a suit of brown and gold velvet trimmed with the most filmy and delicate lace imaginable, every day in the year, they are not too proud to work for their living. They abhor strikes, never waste a moment of time, and loyally and royally give to their young ruler enough of the sweets gathered from a thousand flowers to fill the capitol building. For this girl rules a kingdom of bees, and her profession is that of a honey-raiser. In learning how to win in this direction she has not found it all sunshine, and there have been times when she feared she might be able to write a chapter on blasted hopes, from practical experience.

She began on two or three swarms, and the first year yielded lessons learned only through failures. She was very much afraid of bees, and they stung her cruelly because she, in her ignorance, trampled on their rights. The second year, both stings and failures were less numerous, but the outgrowth of her colonies caused expenditure a little over receipts. The third year the balance in her favor was not large, but she had gained greatly in judgment and qualities which make up a good bee-keeper, while her business gave her delightful chances to study God's marvelous planning for the life and work of even his tiniest creatures. This fourth year her honey-house is filled with luscious honey. There are hundreds of pounds waiting for shipment to distant cities, besides other hundreds which have gone before. As you take one of the cakes, and the light flashes through it, you realize that the bee has made the myth of King Midas' golden touch a reality. It has caught the clover-blooms, and in these transparent cells changed them into gold.

How did this girl earn her success? She kept at it, refusing to be discouraged, even when friends counseled retreat and a withdrawal from the business. She compelled herself to learn her trade as thoroughly as if she were a carpenter, a blacksmith, a painter, or mechanic; and in doing this she studied closely the best books and magazines on the subject of bee-keeping. Realizing that as a learner she ought to begin with the alphabet of her profession, she sent for an "A B C of Bee Culture," and her earnest, faithful study of that rich cyclopædia of "every thing pertaining to the care of the honey-bee" now reappears in returns from Chicago, Milwaukee, and Kansas City.

To keep abreast with the improvements in her profession, to take in the new thoughts of the students, and to have a bond of union with the large circle of little workers, our bee-keeper added to her A B C the magazine, *Gleanings in Bee Culture*, to which she owes much of her success. We who skip the technicalities, and dip into bee details just a little for our bee-keeper's sake, have learned to love and look for *Gleanings*, because it helps us, bee-magazine though it is, to learn how to win the kingdom of heaven. MRS. LYDIA STRAWN.

Ottawa, Ill.

We extract the above from the *Northwestern Christian Advocate*, of Dec. 1. The moral to the little story is excellent, and we bid those A B C scholars who feel disappointed because they have not taken in more money than they have paid out for the first year or two, to read the story and take courage.

SEALING HONEY-TUMBLERS, ETC.

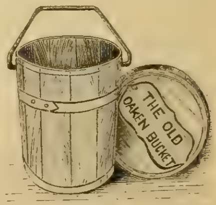
HOW TO MAKE THEM ABSOLUTELY AIR-TIGHT, AT AN INSIGNIFICANT COST.

AT the Michigan State Convention a little idea came up that was well worth the whole expense of time and attendance. As a matter of course, honey pails and tumblers were on exhibition, containing samples of honey. Now, even experienced bee-men would every little while tip a tumbler over on its side, and the honey would ooze out under the edges of the cover, daubing the tables, the fingers, and clothes of the bee-friends. Secretary Cutting finally asked permission to tell the convention how to obviate all these troubles; and when he told it I felt like giving an Indian war-whoop of exultation, although I did not dare to do it just then and there. The plan is, briefly, this:

Get a cheap wire sieve of coarse mesh. Those we have on our ten-cent counter will do; or the transplanting-frame on page 136.

Put this frame or sieve on a couple of boxes, so as to raise it high enough to set a coal-oil stove underneath. I believe that friends Cutting and Mason, at the Tri-State Fair, used the part of an uncapping-can to which the wire cloth is attached. Now turn your glass tumblers or pails bottom up over the wire cloth, and arrange the heat so they will gradually get warm enough to melt beeswax. Then dip them in melted wax, kept in some pan over another lamp. The wax in this latter pan should not be over one-fourth or one-eighth of an inch in depth. Dip the mouths of your tumblers in the melted wax, holding one in each hand, but don't turn them right side up until the wax has cooled enough to prevent it from running down the sides. With a little practice you will find you can very rapidly put a nice ring of wax evenly over the mouth of every glass pail or jelly-tumbler. As the glass was warm when it was dipped, there is no possibility of the wax cleaving from the glass. This arrangement is for cups and pails having a cover that slips over the top. It works especially well on the "Old Oaken Bucket" glass pails that have been sold so largely, a cut of which we give:

In putting on the covers we must warm *them* up to the point where they will melt wax; and this is done with the same apparatus used to warm the glass pails. After a lot of your pails are coated with wax, as described, fill them with honey up to within a quarter of an inch of the top; or you can, if you choose, weigh out a certain amount of honey in each tumbler. Of course, you are not to daub any honey on the sides, nor get any on the beeswax; for if you do, it will spoil the plan. Take one of the hot tin covers and slip it over the pail, just as if no wax were on the rim at all. The cover should be warm enough to melt the wax as it goes down. It will then be sealed up so perfectly that you can roll the package on the floor, if you choose, or hold it upside down as much as you like.



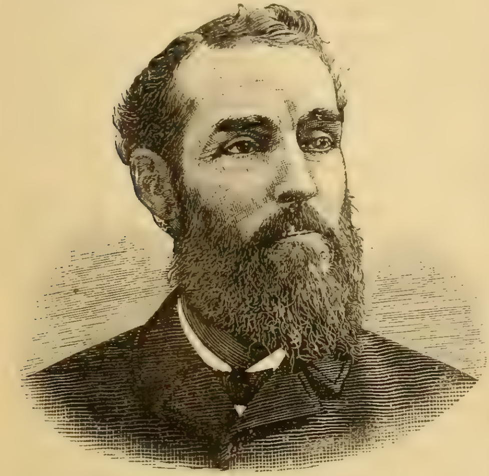
"OLD OAKEN BUCKET" GLASS HONEY-PAIL.

Friend Cutting said the credit of the invention belongs to Dr. Mason, of Wagon Works, near Toledo; but Dr. Mason very modestly disclaimed any credit for the invention, saying that he read a description of the process in back numbers of GLEANINGS. I promptly replied, that no such thing had ever been given in our pages. Then he said it was in the *Canadian Bee Journal;* but our genial friend McPherson, who represented Canada and the *C. B. J.*, replied as promptly, that he was sure no such thing had appeared in *their* pages. Now, then, friends, if any one can tell us where this matter appears in print, providing it has *ever* been in print, we shall be glad to "render unto Cesar the things that are Cesar's." If we can not find any such place, I think Dr. Mason and Secretary Cutting will have to bear the honor. It is a most simple thing, it is true; but I have experimented and puzzled my brains for years to decide upon some cheap method of sealing up jelley-tumblers with beeswax. The trouble was, it never occurred to me to put on the wax *before* I put in the honey. While we are on the subject, I may remark that we can furnish the Old Oaken buckets of 1 lb. for $4.50 per 100, or $40.00 per 1000.

SOME OF GLEANINGS' CONTRIBUTORS.

TAKING A LOOK AT THEIR FACES.

IT is a rare pleasure to meet, face to face, those who have written for the pages of any periodical we love. This has often occurred to me when attending the various bee-keepers' conventions. Well, the next best thing—that is, where we can not meet them face to face—is to see their faces illustrated through our journals; and we take pleasure in submitting to you the picture below—a very good one of our friend T. B. Terry.



T. B. TERRY, THE POTATO MAN.

Mr. Terry is pretty well known to the readers of GLEANINGS, through his articles here and elsewhere. He commenced on a poor farm, with only little capital to start with, unless it was an education a little better, perhaps, than the average young farmer has; faith in himself, and a determination to make his way by his own strength of muscle and vigor of brain, and last, but not least, by the hearty co-operation of his good wife. The great feature of Mr. Terry's life, and the one that has made him sought after by different States to address farmers' institutes, is the fact that he started in the outset to see if the labor and drudgery of farmwork could not be shortened and made easier by better tools and better methods of management. Our friends who read the *Ohio Farmer* will notice that our friend Terry has been pretty severely pulled to pieces, especially in regard to this matter of improved tools; but he seems to be abundantly able to keep up his side of the argument, especially while he has his own small farm, his own stock, and his own tool-house full of tools to back him up. It is not theory that friend Terry writes—it is actual experience, and the fruits of earnest, faithful, hard work. He is heartily in love with his farm and farmwork, and his love and enthusiasm are so contagious that one can scarcely read his writings without wanting to be a farmer too. I did not know till just now that friend Terry was with me on the tobacco question. But I might have known it; for how could a man in these times be progressive, and be a tobacco-user?

HOW I FIXED MY BEES FOR CELLAR WINTERING.

RAISING COMBS SO AS TO LEAVE TWO OR THREE INCHES OF SPACE UNDER THE BROOD-FRAMES.

HAVING my bees in the cellar, fixed to suit me, I thought perhaps the readers of GLEANINGS might like to know in what manner I had them prepared. The doors to the cellar were left open for two weeks before I set the bees in, so as to cool the cellar off as much as possible, for, as a usual thing, the temperature is too high if I do not do this. A day was chosen for setting in, which was mild, and a little above the freezing-point, so that the hives would come off the bottom-boards without snapping, so as to irritate the bees. I also find that bees are less easily disturbed in such weather than they are when it is colder. Before setting the first one in I placed a bottom-board on the ground, and upon this I set a cap, or cover, to a hive, so as to raise the hive a little distance above the cellar bottom, on account of damp and impure air. On top of this cap was spread a part of a newspaper so as to keep the droppings from the bees off the top of the cover; for I have found there is nothing that will spoil the paint quicker than will these droppings. On top of this paper I placed a rim, or frame, made by nailing four pieces of half-inch stuff, which was 3 inches wide, together, so as to be the same size as the bottom of the hive. On this rim the hive is placed, which gives about 4 inches of space between the bottom of the hive and paper below, for plenty of room for dead bees to drop, and for fresh air to circulate.

Before setting in the cellar I made a sawdust cushion as follows: A rim was gotten out, the same as that upon which the hive is placed; and upon one side of this was tacked a sheet of cotton cloth, which cost only 5 cents per yard. To hold the cloth securely to the frame, a strip of the same was torn off and folded so as to be three double, this being placed on top of the sheet, along the edge, so as to clamp the sheet between it and the frame when the nails were driven. After nailing on the first sheet the rim is turned over and filled with fine dry basswood sawdust, which was saved when sawing sections last winter, the sawdust being well packed down. Now nail on another sheet the same as the first, and the cushion is made. Before putting this on the hive I took off the quilt, or honey-board, and substituted two sheets of this same cotton cloth; for from the experience of the past three winters I find that such is much the best, as it allows the moisture from the bees to pass off, yet keeps the bees dry and nice. Especially do I find this so in cellar wintering. As it takes only one yard of this 5-cent cloth for one of my hives, the expense is very little; while the cushion will last for a lifetime, if properly cared for. When the hive is set in the cellar a sheet of newspaper is spread over the cushion, the same as was the one on top of the cap, when another rim is placed on this, and we proceed as before. The cellar is high enough to pile four on top of each other, and wide enough to place three tier side by side, but I set only one tier on each side so as to leave an alleyway in the middle, so I can inspect them at any time I may wish, for I always go into the cellar twice a month to see that all is right as to temperature, mice, etc.; and at these times I can not help looking at the little fellows, for the fun it gives me. I know some insist that this is all wrong; but I could never see that it did any harm; and even if I did, I doubt if I could deny myself this pleasure, for I keep bees for pleasure as well as profit, often thinking that the pleasure part pays the better. Well, after all are in, the cellar is closed, when it is managed as I told you about last winter.

G. M. Doolittle.

Borodino, N. Y., Nov. 26, 1886.

Friend D., in regard to raising the bottom-boards for wintering, I would add that friend Bingham, at the Michigan State Convention, stated that he did not know of any other one thing that had given so good results as raising combs two inches or more from the bottom-board. This allows dead bees and debris to drop down through out of the way; allows plenty of air to pass all around under the comb, and seems to be a safeguard against the effects of dampness and impure air. He uses this space below the combs, whether they are outdoors or in the cellar; and he has of late been very successful in wintering with little loss.

OVER 20 TONS OF HONEY, AND HOW TAKEN.

When Honey is Sufficiently Ripened to Extract.

VALUABLE SUGGESTIONS FROM E. FRANCE.

After selling off 55 colonies of bees we had 395 colonies to commence with in the spring. We increased by dividing until we had 507 colonies in the fall. We commenced to extract honey June 3d, and finished on the 5th of July. Amount of honey taken was 42,489 lbs.—an average of very nearly 108 lbs. per colony, spring count. The bees were in six apiaries—one apiary at home; the other five were from 4 to 7 miles away, in different directions. We worked one apiary a day every day except Sundays and the 3d day of July. But all the boys were hired to work on the 4th of July, or the day on which the Fourth would be celebrated, as this year it came on Sunday. Boys don't like to miss the Fourth of July, and so they proposed to have me let them work three apiaries in two days, and then have the day gained to go to the celebration. I agreed to that. Now, if ever you saw a set of boys work to gain time, you can form some idea how those boys worked.

On the first day of July we were up and off, and drove 5 miles to the yard to work; got there as soon as it was light enough to work. We put up the tent and extracted 1800 lbs. of honey, and then drove home, unloaded the honey, ate our dinner, and then drove to another yard, 5 miles away in another direction; got there at 5 o'clock P. M. We worked half of the bees, and then drove home with 1200 lbs. of honey. The amount taken, after five o'clock, by daylight, made 3000 lbs. extracted in one day, and we drove 20 miles in going and coming to and from our work.

The next morning at daylight found us 7 miles from home at another yard where we extracted 1400 lbs., and drove back home to dinner. After dinner we drove back to the yard that was half worked the day before, and took 829 lbs., and were home again before sundown, having taken out that day 2229 lbs., and traveled 24 miles. I think that was pretty good work for boys. I ran the extractor both days myself—a two-comb machine. We keep one extractor at each yard during the honey-harvest, and don't move them from one yard to another.

I make our own extractors, as I can not buy one to suit me. I make them in the winter, when I have plenty of time, then they don't cost as much money out as it would to buy them. From the time that I commenced to use the extractor up to the year 1884, we emptied the combs once in 10 days; but the three last years we have emptied them just once a week, or 7 days. We find the seven-day plan decidedly the best one. We get more honey, and I can not see but it is just as good. This dry season we could have extracted as often as four or five days, and the honey would have been all right. Last year was very wet, and our honey was about one-fourth capped when we extracted it, and the honey was rather thin. This year the combs would be, on an average, three-fourths capped, and were thick—in fact, thick enough as fast as gathered. Another reason why I like the seven-day plan is, we are not troubled with the bees getting the swarming fever. They get their combs just nicely filled in our large hives, in seven days, and then we come and empty the honey. The queen then has room to deposit her eggs, and the bees have plenty of room to store their honey; and then they are all happy and contented, and won't swarm. We use the Langstroth hive, three stories high, for the extractor, with eight frames in each story, and we don't think it is any too big; and, by the way, we are wintering some of them three stories high outdoors—the top story a solid block of honey.

We don't practice any method of ripening our honey by artificial means. We take our honey-barrels right into the field with us; fill them, drive in the plugs, take them home, and store them in our honey-house, standing on end, with the plugs up. We put the honey in through an inch hole, with a funnel. We pack the barrels away without loosening the plugs, just as they come from the fields, and I think the honey keeps better than it would to give it air. It is put in warm, in the heat of the day, and will not swell by cooling. Keep it tight, and it will, I think, retain its flavor better than to give it air. I know the honey will remain longer without candying if kept tight.

REPORT FOR THE LAST FOUR YEARS.

Average amount of honey obtained the last 4 years is 103 lbs., spring count.

No. colonies spring of	1883, 211.	Average,	104½ lbs.
" " "	1884, 285.	"	109 "
" " "	1885, 320.	"	91 "
" " "	1886, 395.	"	108 "
Average amount for the four years,			103 "

For so large an amount of bees for so long a time, we think that is a pretty fair report. The bees have all been wintered on their summer stands, with a steady increase in the number of colonies.

THE RECORD OF TWO STUDENTS.

As I said at the beginning of this article, we sold 55 colonies, last spring, to a couple of our students, one of them buying 4 and the other 51. The boy who bought the four got 117 lbs. average of honey from the four. The other lot of 51 was hauled 9 miles on lumber wagons, without springs, over a very rough road, then unloaded in my pasture-lot. He commenced to move them March 19, and moved when the roads were passable. Most of the bees were moved the 14th and 15th of April. On the 21st day of April, and the following night, the bees were all loaded up again on lumber wagons, and moved 1¼ miles, and put on a car. The next day I went with them to Brodhead, 80 miles, then again they were moved one mile and set up and turned loose to work in a new location. One of the hives had a leak in it. As they were packed in a cattle-car, I could not get to them to stop the leak; and when we opened it there were only a few young bees in the hive, so we put the brood-combs and young bees in with another swarm.

One colony swarmed out and went off, leaving him 49 colonies to commence with. From these he extracted 9880 lbs. of honey—an average of 201 lbs., spring count—a pretty fair record for a boy, for his first year, by himself.

A GOOD REPORT FOR BLACK BEES.

It seems to me I hear you say, "They must have been a pure strain of Italians, or some other fancy breed." Well, they were a pure race of blacks, or brown bees, as you choose to call them—those fellows that some writers say "live only from hand to mouth"—poor despised blacks. They are not so poor a bee, after all. Who has got 49 colonies of any other race that has done any better (take a whole apiary through, not pick out 49 of the best)? Do I think the brown bee is as good a honey-gatherer as the Italian? Yes. I don't think there is very much difference, and I have been handling them both for several years, and have had several strains of Italian bees in that time. I am sure that there is more difference in a location for an apiary than there is in the race of bees. Take, for instance, that same lot of bees that I sold and moved to Brodhead, this last spring, where they were before I moved them. They never gave as good an average as my other apiaries. They had plenty of basswood, but were short of clover. In their new location they had plenty of white clover, and a fair range for basswood besides. As the weather was so dry, and he had only the one apiary to attend to, he extracted oftener than I have ever done, and that made a big difference in the amount of honey gathered. Perhaps the Italian bee in the same place, and handled the same, would have done as well, but I don't think they would have done any better, so you see the Italian is not a favorite with me. I have a good many pure Italians and a good many more—hybrids, I think. The hybrids are the best workers; and as for their stinging qualities, they can do their share of it. The brown bees are the most peaceable, and less liable to sting, of any bees I ever had.

Now, I know that I may be treading on somebody's sore toes, but I can not help saying just what I think. I wish I could get a race of bright Italians that are as peaceable to handle as my brown bees, and I am ready to give $25.00 for a queen or queens from which I can raise those bright Italians that will be as peaceable, and as good honey-gatherers, as my brown bees. Why? Because we have about as many bees as we care to handle, and would like to sell off our increase, and I think Italians would sell better.

I have some other things to say at some future time. I will just say here, if any one wants my views on any point in the bee-business, let me know what it is. EDWIN FRANCE.

Platteville, Wis.

Many thanks for your excellent report, friend F., and we are very much obliged to you for this last invitation. In accordance with it, I want you to tell us about that home-made extractor that suits you better than any you can buy. Tell us how it is made, and your objections to those that are in the market.—Barreling your honey, and bunging it up just as it is taken from the hives, would be in accordance with friend Bingham's views. I believe you are right in saying that honey that is corked or bunged up will keep longer without candying. Doubtless you remember what has been said about the crop of alsike-clover honey which we found at the Columbus State Fair. Well, we are greatly surprised that, even after our zero freezes of late, it has not candied a particle. You can cut it with a knife, and it is really liquid amber, but no candying.—I am very glad indeed to know that you have succeeded so well in teaching the boys who help you, that they make the excellent report you give us. Yes, I am glad to get it, even if it *is* a good report from black bees. But, look here, old friend; even if you have found as good results from black bees as from Italians in the way of honey, how about repelling moth millers—repelling robbers, and ever so many other points that have been brought out in the last 20 years? Never mind about treading on toes. We will pull our toes back out of the way, if you get to tramping too close and too hard. At the recent Michigan Convention there was some talk about rearing black and hybrid queens for those who prefer them, and I replied that we were ready to supply all demand at the Home of the Honey-Bees; that is, when it is settled that anybody wants blacks and hybrids in preference to Italians.

A GOOD REPORT FROM SOUTHERN IOWA.

ITS FLORA AND RESOURCES.

I HAVE located here in the southeast part of Page Co., Iowa. I came here last March, hence I have had the opportunity of noting the character and result of the past honey-season. The people here claim that it was a very poor season, on account of the extreme drought that prevailed, lasting from June 9th until Aug. 13th. This had the effect to cut short, somewhat, the clover and basswood yield. It also impaired the growth and development of the autumn and fall flowers. The fall rains resulted favorably to the secretion of nectar, and, as a result, bees are in a good condition for the approaching winter. My yield for the season was 121 lbs.; clover and basswood, and 96 lbs. autumn. Total, 217 lbs. per colony, for the season.

If I am not mistaken, this is an excellent place for bees and honey. The industry, however, has been neglected, as nearly all use the box hive, or some substitute. I brought fifty Simplicity hives in the flat with me when I came here last spring. Forty-one of these are now in the hands of my neighbors. Many never saw a movable-frame hive with metal bearings before, while wax sheets and their manufacture was an unheard-of wonder. People came for miles around to see the extractor work, and get a glimpse of my fixtures and mode of handling bees. One gentleman came three miles, and offered me two dollars to show him a queen-bee. Of course, I showed him the queen, and he saw her depositing eggs as any good queen should. You can rest assured that he went away highly pleased, and I allowed him to take his two dollars along too.

I will give a condensed list of the honey flora of this section of country. First, the sources, constituting the spring flora.

The soft maple comes first. This is followed by the different species of willows, which exist here in great abundance; then comes a great array of minor prairie-flowers, followed by the box-elder, which is very plentiful. Then comes fruit-bloom, which is a bonanza, besides our cultivated orchards, of which we have a full supply. There are 1000 acres of timber within a radius of 2½ miles of me, which is literally thatched over with wild-cherry, plum, crab-apple, and white-thorn. When all this comes into bloom, I doubt not that it makes both the bees and bee-keeper rejoice.

Here the spring flow closes, and we find that it has run into the lap of the summer flow, for white clover is now in bloom, being about May 20. Basswood opens about June 15th, right in the midst of the clover. Then comes a rush of honey, lasting until July 1st. Here the summer flow steps down and out; and a lull of two weeks ensues. Then comes the autumn flow, which is ushered in by the blooming of the buckbush, a very good honey-shrub, and very plentiful. A week later we are met with a bright yellow flower that seems to be a near relative to the noxious Spanish-needle, yet it lacks the needle, and is quite distinct from that variety. From this the bees are found bulging their combs with a bright golden-colored honey. A week later comes heart's-ease, which seems to give still better results. This continues in bloom until the last of September, and is here very plentiful; in fact, it is a great nuisance to farmers. In the meantime a great array of autumn prairie-flowers are in bloom, many of which seem to furnish considerable honey. Notably among these is the prairie-locust, that grows in great profusion.

The fall season closes with the various species of fall asters. These furnish a good flow of honey when atmospheric conditions are favorable. The honey season closed here this season Sept. 29th. The aster family furnished no honey—weather conditions not favorable. R. B. ROBBINS.

Siam, Iowa, Nov. 24, 1886.

Friend R., as you state it I should say that your locality is a most excellent one. It is very rare that we find three great sources of honey all in one place; namely, fruit and apple trees, white clover, and basswood. When we have added to this the yield from autumn flowers—that is, if you have this every season—you have a remarkably favorable location. Two hundred and seventeen pounds to a colony is certainly excellent; but you do not tell us how much of an apiary you had.

FRIEND TERRY ON TOBACCO.

HE STARTLES US BY SOME NEW FACTS.

FRIEND ROOT:—It is with a great deal of pleasure that I read, in each number of GLEANINGS, the Tobacco Column. I am glad to know that one man is doing all he can to check this filthy and disgusting as well as expensive habit that is now so widespread in our beautiful land.

Some experiences lately have made me think more than usual about tobacco and its victims. I called on a family, not long since, who are said to be very much in need of help. They hadn't any oil to burn, but the man kept up his steady spit, spit, spit, as long as I stayed. It was, perhaps, the poorest home I was ever in; but not so poor but there is money for tobacco. I know another poor man, about 60 years old. He has always been a faithful, hard-working man; but from boyhood he has drank, and used tobacco steadily. He is not a drunkard, but a steady drinker. He has quite a family; a nice wife; but the house, or shelter, they have lived in for 20 years is but little better than outdoors. He told me himself, that in very cold nights one of them had to sit up and keep putting in wood while the others slept, and that with their beds up close to the fire. I think they usually get enough to eat, but that is all. The rest goes to the saloon. I carefully figured up, the other day, from statements made by the man himself, and found that the money he had paid for tobacco and liquor, saved and kept at interest, would to-day *buy him my farm and home.* Now, it's a question with me how much charity we owe such men, and I should like your opinion, friend Root. *I* have saved my money, and bought a home; *they* have squandered theirs, and have got nothing. When they are sick and actually starving, why, then there is no question; but who wants to help them when half their earnings go for tobacco and liquor? But, how about their families? This reminds: I was traveling with a fine young man lately, whose father's name is known and honored throughout the United States. I missed him from the sleeping-car, in the evening, and, seeing him the next morning, asked him where he had been. He said he went to have a smoke, and fell asleep in the smoker, and didn't wake up till morning. I believed him, until I heard from the train hands that he had spent the night on the floor of the smoker, *drunk*. They wouldn't let him into the sleeper; but out of respect for his father they kept the matter quiet, and took care of him.

Take a walk with me through the streets of Chicago, St. Louis, or any of our large cities, and see the multitudes of children, hardly beyond the spanking age, who are smoking and spitting. Think of what they are probably coming to. It is appalling. It is well known, that tobacco is doubly injurious to the growing child. We ought to have a United States law, forbidding all minors using tobacco. When a man is full grown, and pays his own bills, let him use it, if he must, providing he does not marry. This is a little hard on some of the good married men who use the vile stuff, perhaps they may think; but I have got a dreadful thing to tell them. Not long since I was walking in the city with a celebrated physician. As we passed a house, surrounded with every evidence of wealth and refinement, he spoke:

"I have a patient in there, an idolized wife, who is dying, and beyond all help, and none of them know what is the matter with her, and still her husband has killed her."

"Why, doctor," says I, "what do you mean?"

"I mean just this," he says; "her husband is just literally steeped in tobacco, until the insensible perspiration from his body has become a deadly poison, and his wife has absorbed enough of this, and had, before I was called in, so that she will die."

"Have you told them?"

"No; what good? It would only add to their misery now."

"But, doctor, are you sure?"

"Yes; I have seen such things before. Some constitutions can bear the poison, and some can not. Why, just to give you an idea, I saw this experiment tried, among others, at an establishment where they treat patients for the cure of the tobacco habit. A man just brought in was washed as clean as soap and water could make him, and then some flies were allowed to alight on him. In five minutes, by the watch, they were dead. There was poison enough in the perspiration that came out of a man washed as clean as possible, to kill them. You can imagine what it would be, when he wasn't washed, perhaps, to spend hours each day in a warm bed with him."

This was all new to me, and I was completely dumbfounded.

I don't use tobacco, thank God, and never did; but if I had, that physician's statement would have stopped me as surely and quickly as a bullet would. Run any risk of killing my dear wife by my filthy habit? Not much! I would have slept in the stable; no, in the pig-pen; no, outdoors under a tree, far from every live animal, until the poison was all out of my system. T. B. TERRY.

Hudson, O.

Why, old friend, you have got away ahead of the whole of us in regard to the tobacco reform. I was prepared to believe that people sometimes kill themselves by its use, but I did not dream of such a thing as their killing others who are obliged to be near them. Your remarks explain something, however, that I did not understand before. Whenever I am obliged, even for only a little time, to remain in a room or car filled with tobacco smoke, it sickens and crazes me, and sometimes I have noticed that it takes two or three days to recover entirely from the effects of the poison. May be I could get accustomed to it in time, as I have become accustomed to the poison of the bee-sting; but I believe I would rather remain as I am in this respect.

A few days since, myself and two other bee-friends were obliged to wait for a train at Ann Arbor. To while away the time, we had a friendly dish of oysters, in a clean-looking restaurant. While paying our bills a troop of juveniles entered. Every one of them had a cigarette in his mouth, even away down to the small boy with short trowsers. Why, he was not very much bigger than Huber; and the sight of this boy, inhaling the fumes of tobacco, the blood in his youthful veins being stimulated by the vile narcotic, almost made me shudder. Dr. Mason suggested to the proprietor that boys ought not to be allowed to smoke in such a place.

"Why," replied one of the small ones, "he sells us the cigarettes hisself."

That was a clincher. So long as the proprietor sold cigarettes, the boys had a right to smoke them on his premises. It is positively appalling to see these little ones rivet the chains of a vile habit while they are too young to discriminate. I wish I could see these boys' mothers.

Friend Terry, I, too, thank God that you do not use tobacco; for, to tell the truth, I did not know, until just now, but of course I might have known, that men like yourself, Prof. Cook, and, I think I may say, the entire corps of contributors of GLEANINGS, without many exceptions, would not, on general principles, use tobacco, because they love their wives, as you put it (the *queens* of our homes, you know); they love their fellow-men, and they love their Maker. Now, I feel glad to think that we can join hands in this work, and that we can join in our daily prayers in pleading with the great Father for the boys of our land—yes, the juveniles, even if it is true that the grown-up ones are, many of them, past saving. By all means, let us have a U. S. law for the protection of minors.

SMOKER FUEL; MANAGEMENT OF SMOKERS, ETC.

DOES HEAT CURE DIARRHEA?

LAST winter, some time in February, if I remember correctly, there appeared marks of diarrhea in a few colonies in one of my cellars. The weather had been pretty cold, and fires had been rather low. I increased the temperature by better fires, and there were no further appearances of diarrhea. I do not conclude from this that heat is a sure cure for diarrhea, but I look upon it as a straw blowing in that direction. There are so many chances for mistake that I may be deceived in the whole affair.

SHAVINGS FOR SMOKER FUEL.

In GLEANINGS for Oct. 15, Ernest tells how he uses sawdust; and for such as have plenty of the proper material on hand I do not know of any thing better than to follow his instructions; for with my plan and my shavings, instead of his sawdust (for I can not get sawdust such as he uses) I am obliged to replenish my smoker oftener than he; but some, I think many, can not get his sawdust; and even if other sawdust would do just as well, there are some who do not have plenty of rotten wood. Let me tell you just how I use shavings; and for starting me in the use of them I would not begrudge many times the price of Mr. Heddon's book. In a convenient place in the apiary stands a box, of one or two bushels capacity, in which I put common planer shavings of pine. The box is covered with a tin hive-cover, so that it is thoroughly rain-proof. In this box is a small tin box containing matches, and a baking-powder can, to hold prepared rotten wood. Ernest suggests another baking-powder can to be used as a sort of scoop with which to fill shavings into the smoker. The rotten wood is prepared in this way: In a stone crock or other vessel I put something like a gallon of water and a pound of saltpeter. To this I add a little red aniline dye, not because it makes it any better, but so that I can tell at a glance whether the wood has been prepared or not. After the water has dissolved the saltpeter, I fill it with pieces of rotten wood, something like the size of a hickory-nut; let it soak perhaps two days, then take out and dry, and it is ready for use. If I am using Bingham's "Doctor" smoker, I put into the smoker enough shavings to fill it half an inch or an inch deep, then touch a match to a piece of saltpeter wood, drop it into the smoker, and fill the smoker nearly or quite full of shavings, pressing them down pretty hard. The saltpeter wood will be in no danger of going out while this is being done, even if the bellows is not worked. Instead of putting wet carpenter shavings on top, as Mr. Heddon directs, I find it usually more convenient to pick up a little bunch of green grass, and I find this answers the purpose. I have, however, had made a circular piece of tin, filled with ⅜-inch holes, and having a diameter about ¼ inch less than the diameter of the smoker. A piece of wire, fastened into the central part, serves as a handle, and this piece of tin being always on hand serves in place of wet shavings or grass. An improvement, perhaps, would be to fasten the circular piece of tin in the nozzle of the smoker.

I have made an entire success of using planer shavings in a Clark smoker. To light it I take a piece of saltpeter wood, light it, and put it in the smoker, either after putting in a few shavings, or after the smoker has been crammed full of shavings. Then I blow till it is well going. I find that it works just as well in the Clark as in the Bingham.

I like the Bingham better than the Clark, because it requires no cleaning of the tube, and is good, whether old or new. I like the Clark, if the tube would not fill up, better than the Bingham, because it costs less, and because it sends a stronger blast. A *new* Clark is about perfection.

LEGISLATION FOR BEE-KEEPERS.

A committee was appointed at the North-American Convention at Indianapolis, to inquire into the desirability and feasibility of obtaining such legislation as would secure bee-keepers a right to certain territory, without fear of intrusion from other parties. The convention by no means indorsed such legislation, for I think few of them had given the matter enough previous thought to be familiar with it, but they merely thought worth while to inquire into the matter. If bee-keepers will give their views through the bee-papers it will help the committee to make a more intelligent report at the next meeting. Please give us your reasons for and also against either the desirability or the feasibility of such legislation. C. C. MILLER.

Marengo, Ill., Dec. 1, 1886.

P. S.—Since writing the above, GLEANINGS for Dec. 1 has come to hand, and I will say to the good friends Z. T. Hawk and A. F. Stauffer, that I will try to reply soon to their courteous remarks and queries. I will just say to friend Hawk, at the risk of lowering his estimation of my intelligence, that I am not joking, but in dead earnest; and although not certain, I *think* I am right. At any rate it will do no harm for us to talk it over in a good-natured way, and I will try hard to keep down my temper.

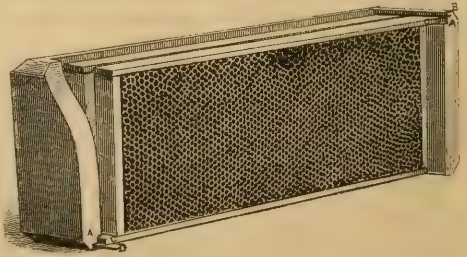
M.

Friend M., I think there is no question but that heat will prove a perfect cure for most forms of diarrhea, providing it be administered just right. You know all of our old troubles of spring dwindling gave way to the influence of warm sunshiny weather, especially when it came accompanied with honey from the soft maples or from fruit-bloom.—I am glad to hear your good words for the Clark smoker. At the Michigan Convention we had some good-natured jokes in regard to our respective smokers, and some of them seemed a little surprised when I told them I never claimed that the Clark smoker was the *best* smoker in every respect. In fact, I always feel a little modesty in claiming that any thing made by myself is better than anybody else can make. Even if it were a fact, I don't believe I should want to say it. If the Clark sends a stronger blast than the Bingham, even when new, I think that is a pretty good recommend for it. We are working hard on the problem of making one so the blast-tube will not fill up.—You may be right in regard to the matter of legislation, but I fear there will be a heap of objections before we can bring it to pass. I for one should be very glad indeed if I could purchase the privilege of keeping all the bees that are kept, inside of a certain district, without being obliged to purchase the entire real estate of that district. If it can be done, it will certainly be a great thing for bee-men, and, in real truth, it will not harm the occupants of said district, or inconvenience them to an amount great enough to be estimated. Perhaps we might buy the privilege of the land-owners, in some localities. Go ahead, friend M. We shall be glad to hear what you can suggest in the matter.

KRETCHMER'S INVERTIBLE FRAME AND HIVE.

AN INGENIOUS ARRANGEMENT.

THESE frames are separated from each other and from the case, and have all the lateral adjustments of the Langstroth frame. By referring to the illustration below it will be seen that only the right-hand end of the top-bar projects beyond the end-piece of the frame, resting on a rabbet, A, which is less than ¼ inch; while the left-hand end of the bottom-bar, C, projects likewise into a similar rabbet of the hive, resting on a strip of metal, D, inserted into a saw-kerf cut in the end of the hive.



KRETCHMER'S METHOD OF MAKING AN INVERTIBLE HIVE AND INVERTIBLE FRAME.

To remove the frame from the hive, we have only to lift the right-hand end a little in advance of the left-hand end. This movement disengages the lower left-hand end of the bottom-bar, and the frame, with comb and bees, can be removed or adjusted to any place in the hive as readily as an L. frame. To invert the comb, simply turn the frame end over end, and it is ready to be inserted into the hive in an inverted position, as top and bottom of the frame are alike.

If the condition of the combs is such as to admit inverting them all together, we slip a strip of metal like D (usually a ⅝-inch strip of hoop iron), into the saw-kerf B, over the ends of the frame-tops; and the entire case, with frames, combs, and bees, may be inverted, end over end; and when thus inverted, the case and frames, with their adjustments, are just the same as they appeared before inverting. In fact, both top and bottom of both hive and frames are alike; and, regardless which side of the case is up, any frame can be removed from the top as readily as an L. frame, by removing the metal strip D, which was below the bottom, now over the ends of the top-bar. A hole or two pierced into the metal strip, into which a nail, or the corner of the putty-knife, may be inserted, assists in removing said strip.

While these frames work well in a hive as deep as a Langstroth hive, we use them in our two-story alternating hive, the frames of which are only six inches deep. When of such depth they can readily be handled with one hand; although in a hive, practically arranged to alternate the upper with the lower story, the combs require very little handling. In fact, we don't handle one frame in this hive where we handle four in any other hive, to accomplish the same result.

A few weeks ago, while looking over my past records of wintering bees under various conditions and preparations, I found that I had sustained less loss of bees in the alternating hive than in any other, although wintered on the summer stand, which I attribute largely to their thorough central communication, the two cases of brood-combs being 12 inches deep, with a ¼-inch space through the center. Do not understand me as advocating *tall* hives. I have used hives with frames 14 inches deep, and sustained heavy losses, as tall hives necessarily are of small circumference, and the cold penetrates from all sides, and reaches the bees sooner than in a shallower hive.

E. KRETCHMER.

Coburg, Iowa, Dec., 1886.

Friend K., your plan is not new, so far as the frame is concerned. The idea, however, of slipping a piece of hoop iron over the frames, so the hive may be inverted, is, so far as I remember, original. The whole difficulty with such an arrangement is, that frames supported by opposite corners are not firm and substantial. If heavy with honey, the upper unsupported corner will sag over to one side or the other, and nothing will keep them in place except projecting wood, nail-heads, or something of that sort, and then we have frames at fixed distances. We give the illustration more to show to others that this field has been already worked over, than with the hope that it will ever be adopted. Of course, it would work very much better with a shallow frame, say five or six inches deep, than with the ordinary L. frame. A broad base would also help the frame to stand securely.

FRIEND DADANT IN REGARD TO THE SALE OF HONEY.

CAN IT EVER COMPETE WITH THE SUGAR-INDUSTRY?

FRIEND ROOT:—You will not be astonished if I come forward to take issue with friend Heddon on his article, page 882. He and I hardly ever agree on details, but we have never fallen out with one another, even if we have had pretty warm discussions in different papers.

Friend Heddon says honey will never become a staple. Are not syrups a staple? And is not honey better than syrup, and more healthful? Indeed, we have low prices; but how long will that last? By looking back to our accounts I find that, in 1880, only 6 years ago, we were selling honey, *at wholesale*, in 5-lb. cans, at 75 cts. per can, or 15 cts. per lb. In 1883, only 3 years ago, we sold 14,358 lbs. of honey (28 barrels) to Thurber, Whyland & Co., of New York, for $1435.80, or 10 cents per lb., delivered in New York city. This was mostly *fall honey*. At these wholesale prices, the honey was retailed at not less than 18 or 20 cents, and, of course, could not be expected to compete with syrups.

This year, for the first time, we are offering honey in cans, at 8 cts. wholesale, and 10 cts. retail; and it is selling well, although, to be sure, we have to *offer it*, and we would sell but little if we should sit down and say, "Honey is not a staple, never will be, and is only fit for sauce," which is the long and the short of Heddon's argument.

But can honey become a staple, and compete with syrup, so long as it is retailed at 10 cents, while the best granulated sugar is only 6½? Evidently not; and yet bee-keepers, owing to the new methods of production, are overstocked with it, and can not realize more than 4 or 5 cents on the large markets. Why? For the very reason that they send it to the large markets instead of trying to make it a staple by selling it at home, for a trifle more than they can get on the wholesale market.

But Mr. Heddon and others will say, "I am not a peddler, nor do I wish to be." Very well; but you will find plenty of men who will peddle your honey for one or two cents per pound, and make big wages. The reason why honey is not yet a staple, like syrups, is, that consumers don't know that it can be had so cheap. They may read Chicago or St. Louis quotations at 4 or 5 cents, but they either see no honey at all, or the little that they buy is sold to them at 12 to 15 cents or more. As Prof. McLain truly remarked, in a visit which he paid us a few days ago, "Not one-fifth of the children, the world over, know what honey tastes like." Perhaps children don't like honey!

How can we induce bee-keepers to push their home market? If they will not listen to reason, they will learn it by dear experience. After a few sales in the large cities, at 3 or 4 cents per lb., they will conclude to job it in their own neighborhood at 6 or 8 cents. Then the people will learn to prefer it to syrups, and, for some purposes, even to sugar.

I see by the commercial reports, that there are 12 grocers in Dowagiac. How many of them keep your honey, friend Heddon? Of our 9 grocers in Hamilton, 7 sell Dadant's honey, and the other two do not sell it, simply because we considered their trade too small to be worthy of attention.

Will it pay to raise honey at 5 cents per lb.? We might as well ask whether it pays to grow wheat at

60 to 65 cents, oats at 18 to 20 cents, or to raise and fatten hogs for 2 or 3 cents per lb. And bee-keepers are just as likely to quit bee-keeping because of low prices, as farmers are likely to quit farming, from the same cause.

Friend Heddon undoubtedly makes bee-keeping pay, for he follows our methods on extracted honey, so far as we know, and his crops are always large. Our crop this season is 24,000 lbs., and the prospect is that we shall get rid of it without having to crowd it on the large markets, in competition with that of others. C. P. DADANT.

Hamilton, Ill., Nov. 27, 1886.

Many thanks, friend Dadant, for coming forward at just this point, and supplementing my own ideas with the results of your large experience. If it were only the bee-keepers who are in great trouble because the receipts but little more than pay expenses, we might have cause for alarm. Not an hour ago, a neighbor, who is a farmer, made the remark that his stuff would not sell for enough to pay the wages of his hired help, let alone his own time and the interest of his money. Now, I hope he will not feel hurt because I suggest that his attention was given too much to other business to make farming pay. I am sure that a man who would give his whole attention to this very same farm, and go into it brain and muscle, would make it pay; and so it is with bees. Very likely, bee culture will not warrant one in keeping very much hired help, and neither will farming.

EFFECT OF ALTITUDE UPON BLOOM.

DOES THE INCREASE IN ALTITUDE HAVE ANY EFFECT UPON THE BLOOMING OF FLOWERS?

I WISH to give you some observations on the influence of altitude. Two or three times the question has been asked in GLEANINGS, if, with an increase of altitude, the blooming of flowers is not later, thus prolonging the honey-season. I know that this is the general idea, but there must be exceptions. I live about three miles to the east of the crest of the ridge between the Mississippi and Tennessee Rivers, which runs nearly north and south, and the slope in the direction of my residence has a fall of about 100 feet to the mile. Now, with this difference in distance and altitude, the crest has had, for the last twelve years, an average advantage in earliness of about two weeks, and the same in lateness of frost in the fall, thus prolonging the season nearly a month. I will further state, as I think it has some influence, that our prevailing winds are from the southwest and west.

JAPANESE CLOVER—*Lespedeza Striata*,

Is a plant that I wish to call the attention of bee-keepers to—not as a honey-producer, but as an enemy of honey-producing plants. The first mention that I have of it is that one Thumberg, a German, saw it growing in Japan, nearly one hundred years ago. It was first seen in the U. S. in the vicinity of Charleston, S. C., about the year 1849, and has since spread over several States. It reached this section about three years ago; and from what I have seen of it I can nearly indorse Mr. Pendleton, of Georgia, who said, "It has great powers of endurance, and will absolutely root out and destroy every other living plant in its wide-spread path." This particularly includes white clover. You will first see it along railways and highways, and then it spreads over all the intervening country. As yet, I know nothing that will stop it, so I suppose it will continue its devastating march northward. W. H. GREER.

Paris, Tenn., Nov. 22, 1886.

Friend G., if the altitude were on a high hill or mountain, I think you would have found the later blooming, as has been mentioned. It is well known, that elevated lands are not so liable to be affected by frosts. This is perhaps owing to the fact that the cold air flows by gravity into the valleys, leaving the warmer air on the hill-tops.—I think the Japanese clover has been mentioned before. Will our friends at the experimental colleges tell us if they have found it as friend G. states—a dangerous weed? Gray's Botany calls it a great benefit.

QUEENS' VOICES.

PIPING OF QUEENS NOT MADE BY THE WINGS.

NOTICING an article in GLEANINGS of Nov. 1, on the above subject, induces me to relate an incident that came under my observation one day last spring; to wit: It was Sunday, and my wife, desiring to get along with as little work as possible in her apiary that day, concluded to catch the queens as they came out, and provide places for the colonies by the time they got ready to settle. She caught a Carniolan queen and some half a dozen or more workers under a glass, and then transferred them to a wire cage, and brought them in the house for me to admire. She set the cage down on a table, and went out to attend to her bees while I was busy reading. Every once in a while I heard a way-off sound, as if from a locomotive in distress, and finally was astonished to discover that the noise was made by the imprisoned queen. She would run round in the cage, making frantic efforts to get out, and occasionally stop still and utter her plaintive, distressing call, which was a long "toot" followed by two or three short toots, thus: *t-o-o-t, toot, toot, toot.* The call was so loud that it could be distinctly heard across a large room. I am satisfied that the queen's wings contributed nothing toward the sound, as they appeared perfectly still when she did her piping; in fact, frantic as she was to get out of the cage, she would always stop perfectly *still* before making her call. J. F. HARNER.

Taylorville, Christian Co., Ill.

Friend H., the tooting you mention is quite a common thing with us here at the Home of the Honey-Bees. When we have a lot of queens piled up on our mailing-table, ready to go off, they very frequently get to calling; and when the room is still, say after working hours, I have often heard them call so plainly that their different notes could be heard distinctly in an adjoining room, some distance away. The matter was written up some years ago, under the title of "Queens' Voices," and you will find something about it in the A B C book. Since you mention it, I recall to mind that they usually stand still when they utter this note. It requires some effort of the muscular system, for we can plainly see her little body shake and quiver when she utters the loud calls. We should like to have Prof. Cook tell us if they have studied up this matter at the college.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Nov. 15.

CHAPTER XXXI.

Godliness with contentment is gain.—I. TIM. 6:6.

Most people consider winter a dreary season. It has been much so to me; but I believe I am learning to enjoy whatever weather God sees fit to send us. If we look at the weather as a gift from God, there should be nothing dreary about any of it; and this way of looking at the weather, and all things which are entirely beyond our control, is, I believe, the contentment mentioned in the text at the head of this chapter. I have told you how much I love and enjoy sunshine; yet during this winter I have been taking real enjoyment in seeing the sun go further and further toward the south, until it rises only a little way up, and is now almost away over in the southern horizon, even at noontime. Our new greenhouse, which I enjoyed so much a year ago, is now completely shaded by the new factory until almost noon; but when the sun commences to come back again, as it will in a few days, I shall have an additional enjoyment in seeing it illuminate the greenhouse more and more each succeeding day. I have enjoyed more than ever before, I think, gathering our crops and getting every thing snug and in good shape for winter's frosts. We have secured an immense crop of cabbage. I figured up, at the time we put them away for winter, that we had enough to furnish the Medina people with 100 lbs. every day for a year. Somewhat to my surprise, however, we sold nearer 500 lbs. a day than 100, so our large crop is going off very rapidly. Just before putting them away we put the price down to one cent a pound, and this probably gave them quite a start. We have, however, at this date (Dec. 15), advanced the price to 1½ cts. per lb., and still they go off quite rapidly. We base our price a good deal on the city quotations.

HOW TO WINTER CABBAGES.

In our locality, cabbages keep nicely in the open air by standing them together with the heads downward on a piece of ground where water can not possibly stand, and then shovel dirt on the roots until they are nearly covered. It pays to have order and system, even in so simple a matter as putting away cabbages for winter. Ours were set in six or seven large beds. Between these beds is plenty of room to drive a team. The earthing-up is done gradually, so as not to cause them to rot before cold weather sets in. The location chosen should be on some soft mellow ground where plenty of earth can be easily shoveled from the alleys or roadways, to cover the vegetables. The act of removing the dirt in the roadways also makes water-courses. In gathering the cabbage we have stout men in the fields pulling them, while a stout team of horses with a stout sled drive them to the place where they are to be put away. On the next page, our artist has given a picture of the team in the act of drawing a load of cabbages.

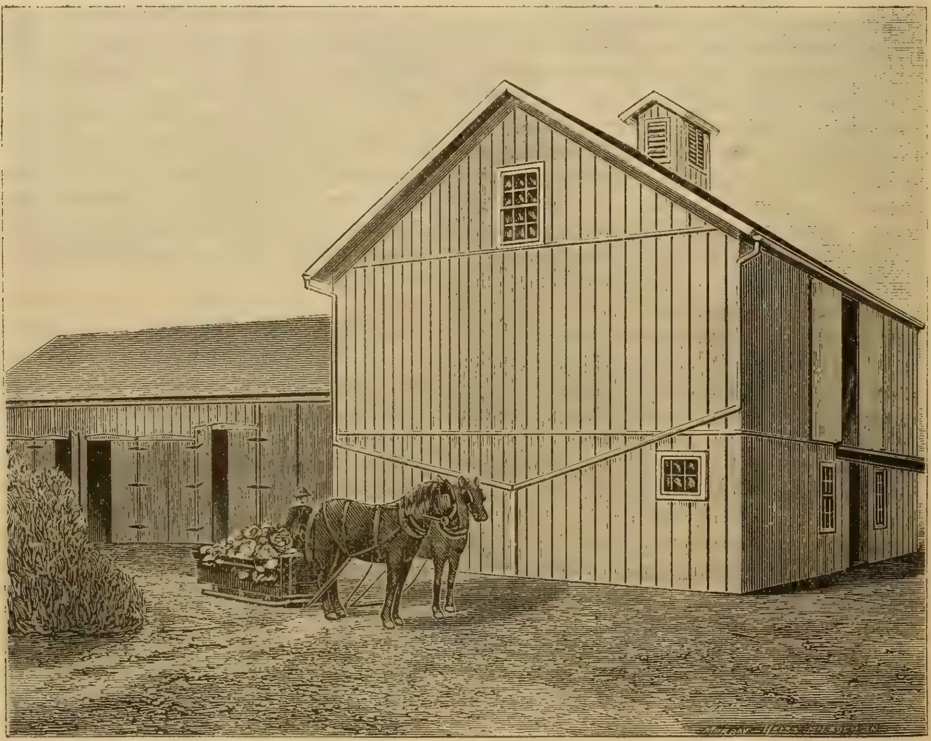
In the foreground is the new barn and toolhouse that I told you about last month. The bridge that leads from the embankment on to the upper floor is not very plainly shown. The tool-house has been so well described before, we need not take space to go over it again.

On the opposite page is a picture of the same buildings, taken from the cabbage-patch. The shed and poultry-house I told you about last month is now in full view. The glass sash, like a small lean-to greenhouse, is in the foreground. It answers the purpose admirably. Under the sash is plenty of dry earth for the fowls to wallow in, and bask in the rays of the sun. Over this earth I frequently give them a bed of forest-leaves, with grain scattered among the leaves. If you want to see fowls enjoy themselves just give them such accommodations. Their corner of the shed was, as I told you, done off with tarred building-paper and matched ceiling, and is, most of the time, too warm unless the sliding windows which you see are thrown open wide. The interior of the rest has been so fully described heretofore, that I hardly need go over it again.

When I was a boy I used to dislike to do chores more than almost any thing else. Feeding cattle, pigs, and chickens, seemed to me drudgery; but with the above-arranged conveniences, however, it is now one of the things I enjoy particularly. I like to go around at night, and see how thoroughly our plans for keeping out frost answer the purpose desired. I like to bank up earth or coarse manure over exposed portions, where the frost seems inclined to get in. I like to hear the pigs grunt *their* satisfaction with the arrangements made for their comfort. I like to see the chickens look at me inquiringly, as they utter a querulous note, as much as to say, "Do you really love us, and want to get acquainted with us?" I like to have the cows and horses put out their noses, as though they regarded me as a particular friend and not an enemy. While speaking about making arrangements to keep out frost, it occurs to me to mention that, where we have buildings without stone underpinning, or simply stone supports under the corners, we have been in the habit of cutting up old tinware, slipping one edge up under the battens to the out-buildings, and letting the other end come down into the ground. You can bank earth or manure up against this without any fear of rotting the woodwork. Around the pig-pens and poultry-house we have taken great pains to keep away water and dampness. To this end we have eave-spouting clear around these buildings, although they are not shown in both pictures; and along the edge of the weather-boarding a deep trench is made, the earth being used to bank up, as explained. The bottom of the trench is perhaps a yard away from the building, but it is so deep that the water is all kept entirely away from the interior. This keeps the earth on the inside of the poultry-house dry and dusty at all times. Now, I enjoy digging these ditches, and banking up the earth, especially where it is done *nicely*. No matter how hard it rains, no water can by any possibility back up into the interior of the building.

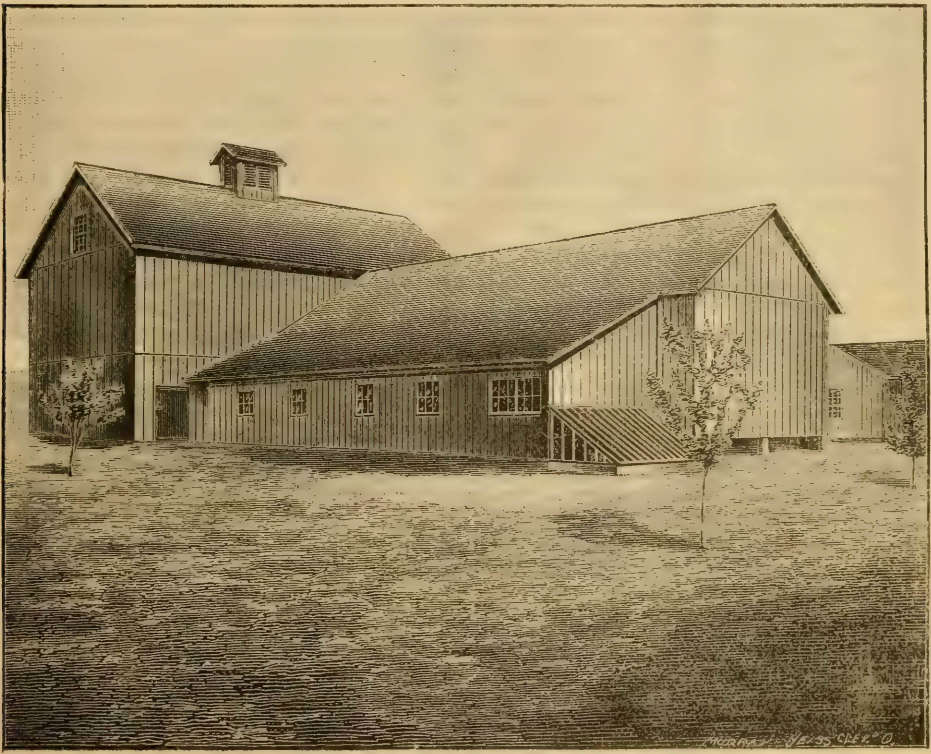
PREPARING CELERY FOR WINTER.

In speaking of banking up the earth around the outbuildings, as mentioned above, I am reminded of the matter of preserving celery for winter. As many of the friends have made inquiries in regard to keeping this vegetable safely, I will describe our plan a little in detail.



VIEW OF OUR NEW BARN AND TOOLHOUSE, WITH A LOAD OF CABBAGES IN THE FOREGROUND.

Where you have but few roots, of course the cellar is the usual way of saving them, and nothing more is necessary to keep them safely than a bottomless box or tub, the roots all being on the cellar bottom, or, if you prefer, in loose damp earth, directly on or in the cellar bottom. Where you have several tubs full, and wish to keep it some little length of time, the latter plan may be the best. I have seen a little bit of puddle, made right in the dirt of the cellar bottom, by digging a shallow excavation, and pouring in water. The roots of the celery are in this shallow puddle, while the tops are held close together and kept in the dark by the box or tub. These plans answer very well, providing your celery is soon to be used. If left too long it is apt to rot. Sometimes it will heat and spoil in a very short time, if you get too great a quantity massed up tight together, or if your cellar is very warm. Suppose, however, you are raising it by the acre, or in still larger quantities. In that case we adopt a plan similar to the one described for putting away cabbages for winter, only we are to remember that celery will not stand as much frost. Select a piece of dry, mellow ground. Thoroughly underdrained ground is by far the best. Of boards or plank, make a square inclosure large enough to hold your whole product when the roots are packed as close together as they will stand. Throw out the earth from the inside, and bank against the outside until the tops of the celery will hardly reach to the top edge of the boards or plank when the roots are in the earth. The location, besides being thoroughly drained, should be, if possible, protected from the prevailing winds. The rows of celery are taken out of the ground by plowing away the dirt with a one-horse plow, until the roots can be easily pulled by hand, without breaking or injuring them. If once plowing is not enough, plowing several times will do it. If the soil is very mellow, however, where the celery grows, it can often be taken up almost as quickly without any plowing. It will need two men, or a man and boy, to take up the roots rapidly. The man should have a tile spade or a potato-fork—we prefer the latter. By the aid of his foot he thrusts the fork deep enough beside the plant to pry it loose, roots and all. The boy then lifts the plant and shakes of as much off the dirt as will come off easily. The plants are laid in two rows, so as to be convenient for the team and sled, before described. When the sled is close beside the place prepared to put the plants, they are carried to the packer, who sets them up against one side of the excavation. To keep them from falling over, a board is placed a foot or fifteen inches from the side. This may be kept in place by



BARN AND TOOL-HOUSE, REAR VIEW, SHOWING MANURE-SHED, PIG-PEN, AND POULTRY-HOUSE, ETC.

means of stakes on the outside. The roots are then packed between the board and the wall, until reaching the corner. The operator will get along faster by having a low wooden box or stool to sit on. The boards to hold the plants in place may be the cheapest kind of culled lumber. When one row is finished, another board is put in, and then more plants, until the inclosure is filled. Nothing now is visible but the tops of the celery, and this is a little below the level of the sides of the pit. It is now covered with straw, swamp grass, or something of that nature, a little being put on at first, and more as the weather becomes cooler, about two feet being needed for a protection in the middle of winter. Over this straw, or poor hay, is placed a roof of culled boards, to carry off the water and to aid in keeping out frost. When the weather is *very* cold, close all openings with boards and straw and banks of earth, a place being left on one side to get in at, to get out the celery as needed. If you should find it covered with frost, and looking as if it were entirely frozen, don't be alarmed. It will thaw out and be as good as ever, if not frosted too severely. In fact, it is better to have a little frost, than to go to the other extreme, and keep it so warm as to rot. It rots very quickly, unless prevented by a low temperature. We now get 8 cents per pound for our celery; and although our people thought at first they never could like red or pink celery as well as the white, they now prefer it above the White Plume. Our best celery, however, owes its excellent qualities to its rapid growth on very rich ground, I think, more than to the fact that it is either white or red. The latter, however, has a nutty flavor.

In regard to the time of putting the celery and cabbage into their winter repositories, if they have not done growing I would let them stand as long as can be safely done without injury from frost. There is also much less liability of damage by rotting when they are left out until rather late, or until the weather is cool. In our locality, from the 1st to the 15th of November is about the time for putting them away. Sometimes we have freezes hard enough to do damage to them in the fore part of November, but not often; and, again, where the mild weather holds on until late, we may often safely wait until the last of November. One needs to watch for the right kind of a day, and then get out all hands and do it up quickly, to do the work to the best advantage.

BAROMETERS AND THERMOMETERS FOR FARMERS AND MARKET-GARDENERS.

It occurs to me here to mention that I have found a mercurial barometer a great help in this matter of studying the weather. Over and over again have I consulted the barometer in the morning before starting the men and teams to their work. For instance, we may have been waiting for a rain, in order to set out a lot of plants. When the barometer is falling, even though there is every indication of fair weather, all hands are set at work preparing the ground for the plants. Freshly prepared earth seems to answer much better for transplanting. Sometimes we get at the work of putting the plants out, before any rain has come at all; and then how nice it is to have a good shower just as the job is finished! I do not think the barometer has failed us once this season in this respect. At other times the appearances are very strong for a settled rainy day, but the barometer is steadily rising. At such a time I start the boys with the market-wagon, and the other team to cultivating, telling them there will not be rain enough to inconvenience them long. Sometimes the change of weather is slower in coming than I had expected, but it always comes, sooner or later. When I am in a hurry I can tell which way the barometer is tending, by a ltitle discovery of my own, but I have never seen it in print. It is this: Give the woodwork of the instrument a tap with your fingers, and the mercury will almost always start either up or down. This movement shows the tendency of the atmosphere. In an hour, give it another tap, and you can verify still further the way in which the weather is tending.

I have before spoken of the advantage of having a thermometer also; and of late we have been greatly pleased with a *self-registering* thermometer that tells just how cold or how warm it has been, even when you have not been near to look at it. This instrument sometimes helps me in this way: Some potatoes or squashes may be left exposed, and we are not yet ready to move them. I look at the thermometer, and find it stands 30° above zero. Now, I know this will not hurt them, because I have observed, a short time before, it went down during the night at one time as low as 25; and as the vegetables were uninjured, there is no immediate need of moving them now. We can not tell by our feelings how cold it is; but a very cheap *thermometer* tells us near enough for all practical purposes.

Now, one reason why I like to be up at half-past five in the morning, even in the winter time, is, that I may be able to meet every hand as he comes to work, in case the weather demands that he have different instructions from those given him the night before. The man who feeds and harnesses the horses, often needs, on account of a change in the weather, to put on the single harness instead of the double ones which were decided on the night before. By being on hand I can get every man started right, and in a way that will prevent conflict and annoyance. I have heard of people who could keep a number of men at work, and be away, letting each one manage himself; but I do not know how he can do it and pay expenses. He might employ a foreman, it is true; but where he can find a hundred men who will work very well under his supervision, he will not find one who could take charge, profitably, of even ten men.

COLD-FRAME PLANTS.

A year ago we succeeded splendidly in wintering plants for early cabbage, in a cold-frame, such as is illustrated in Chapter X. The labor of opening the ends is trifling compared with the usual way of removing the sash, or even sliding it back when more ventilation is needed. We have just finished a cold frame, and filled it with plants made on this principle, 22 x 28 feet. How I *do* love to see the plants thrive, right in the depth of winter! The sight of them is, to me, a constant reminder of the happy springtime soon to come. Yes, and there is another thing that I feel happy about. In two or three weeks more I shall commence starting celery-plants again; and how I do enjoy seeing our greenhouse and cold frames crowded to their uttermost, every inch of space being occupied with plants that are soon to take their place in the open ground. During the past season we succeeded in getting nice celery on the market in July. With the experience we have had, I believe we can do it this season even in June, and then we shall have celery almost, if not quite, all the year round. How I do love to raise celery and cabbage plants for sale! Although we thought we had a plenty beyond any demand that could possibly spring up, toward the last of the season we ran out of both celery and cabbage plants, and were obliged to purchase a good many thousands of each. Now, the purchased plants were none of them anywhere near equal to our own *transplanted* plants, and this year we think we can succeed in raising enough.

CHAPTER XXXII.

Let all things be done decently and in order.—I. COR. 14: 40.

I have several times referred to the matter of order and system; but I want to do it again in this chapter, especially in regard to laying out our ground and putting in the seeds. I prefer to speak of it now because it is winter time, and you have usually plenty of leisure to lay out your plans for another season. If you have not had experience, you may think it a simple thing to do the planning after the ground is fully prepared. My friend, when you are rushed and busy, during April, May, and June, you may be obliged to resort to one of two alternatives. One is to stop and do your planning while your men and teams are waiting for you. The other is, to let them go ahead without any plan, and take the consequences. One of the consequences will be, that you will have your stuff mixed up. For instance, you start to sow Stratagem peas, and the piece of ground you laid out for them will not hold all the seed. As you want it all used, the remainder is put in another piece of ground, perhaps some distance from the first. If you have not tried it you may be inclined to think this will make but little difference; but when your crops are all mixed up in this way you will find it a very great annoyance. It takes time to get ready to get at any piece of work—even a simple one like picking peas; and it takes time to move baskets, water-jugs, and other things, to another piece of ground to finish the job. Still worse, every little while somebody will pick one patch and forget about the other; whereas, if all your Stratagem peas had been in one spot, all the above troubles would have been saved. Again, you hurriedly bid the children go and pick the Stratagem peas. If there are *two* patches of the peas, the children will be sure to go to the wrong patch, even if you tell them distinctly. The consequence will be, probably, they will pick a lot that are not yet ready to pick. Last summer one of our very good girls picked about two bushels of *shell* beans, when she was sent to pick *string* beans. She was picking by the bushel, and, in her anxiety to make good wages, she did not notice the difference. It was all caused by the string beans being in *two* places instead of *one* place. Another time, a grown-up man with a family, and one whom you would think would know how to pick green corn, picked a lot of corn when hardly an ear was fit for use. If the corn had been all in one place, this would not have happened. I could go on enumerating mistakes and misunderstandings that have cost us time and money, all of which could have been avoided had our crops been divided off and placed in nice order, each different kind by itself. If you plant all your crops, and gather them all yourself, this in part might be avoided; but if your grounds are mixed up, a little bit here and a little bit there, you will find *yourself* skipping and forgetting something that ought to have been gathered before it got too old. During the past season we had cucumbers in five different places on our grounds, and we have scarcely a man or boy who would go over the whole of them without forgetting or skipping one patch or another until the cucumbers were too old to sell. The same with summer squashes.

How shall we manage to sow all the seed, and yet have it just fill the allotted space of ground, and have each crop all in one place? There are several things to be considered in order to accomplish this. One reason why we had cucumbers in so many places was because we put them in where some crop failed. How shall we manage so as to have no failures? Can it be done? I think it can. Have good seed that you have tested in the house, or in a hot-bed or greenhouse; or, better still, in the open ground, *the year before*. This latter plan will not apply to a few kinds of vegetables, but it will to the greater part of them. Seed that gave you a nice crop and a nice stand in 1886 will, almost without exception, give you also a nice crop in 1887. The few exceptions are, parsnips, onions, and leeks. Peter Henderson says he would just as soon have every thing else two years old, and no more, as to have seeds just gathered. Another advantage of using seeds that have given excellent satisfaction the year before is, that there is no mistake or misunderstanding about having the exact thing you want; for I tell you it is a terrible loss to find, after your crop is ready to harvest, that it is not what you meant to have it.

The matter of using the same seed for two successive seasons also helps us in having just so much ground for the crop, and having it all in one place. You see, you can lay out your ground in the winter, on paper, then sow enough seed to fill the allotted space, and put the rest away until next season; that is, when your seed is fresh. There is another advantage here: You have whole rows, and no pieces of a row. Sometimes you fuss more with a piece of a row, or injure the plants of half of it in cultivating, than the row is worth. By having *all* of each crop in one place we are also enabled to have long rows, thus facilitating the matter of cultivation. See Chapter XVI. You are also under the necessity of having but one label; whereas, if you had two patches you would have to have two labels. You may regard this as a small matter; but there are few things in raising crops that have made us more trouble than the matter of labeling. We have over and over again resolved that, no matter how hurried we were, every crop should be plainly labeled at the time it was planted. But year after year we come face to face with the sad fact that some crop we either want or don't want has no label on it; therefore we have no means of securing exactly the same another season, or of avoiding the same another season. As an illustration: We planted a patch of Hubbard squashes. I got a little impatient of some delays at the time it was put in, and suggested that there was no need of a label, because everybody knew Hubbard squashes as soon as they began to fruit. So the squash-patch did not have any label. Now, does it not really seem reasonable there was no need of any label on Hubbard squashes? In two or three weeks it was evident that the seed was old or poor, for the plants did not come up, even though the weather and soil were favorable. Then the question arose, Did we buy this Hubbard squash-seed of Henderson, Landreth, or of Gregory? The package containing the seed was thrown away—no one could tell. But I suggested that some other squashes be planted at one side of the hills, that would mature in a shorter time than the Hubbards. By putting them to one side we gave the Hubbards a chance to come up if they wanted to. If they didn't, the others could have the ground. *No labels were put on the last seed*; and when they began to be fit for use, they were something we had never seen before, and we did not know whether they were to be used as summer squashes, fall, or winter. Finally we tried selling some of them; but none of our customers liked them. We waited till fall, and tried them again, but with the same result, and we have a lot of them now that nobody wants. We are quite sure we don't want any more such; but as we don't know where we got the seed, how are we to be certain we shall not unintentionally plant the same thing another year? A few days ago I saw a *picture* of the squash we never want to see again, in one of Landreth's catalogues. It is what he calls his "White Turban," and it may answer a very good purpose on *their soil*, but we never want any more White Turban here, even if they *will* keep twelve months, as he says. Of course, it is one of the "novelties." Now a *most important* point is, it was put in our price list of seeds in 1886, because *Landreth* recommended it, and we would not have it in another season for any consideration. So much for the value of a simple label.

After we have decided that every kind of seed sown must have a good plain label, the question comes up, Where shall we put the label? Some of the friends might say, "Make a diagram of your grounds, in a book, and mark the articles so as to correspond with the diagram." This might do very well, but I do not know where we could put the book to keep it from getting lost, carried away, or mislaid. If we are to write on a stake, where shall we put the stake? Again, what shall we write with so the rains and sunshine won't obliterate it? I have thought a good many times I had found a pencil or a kind of ink that would write on a smooth stick, so the sun and rain would not fade it. The writing is all faded, however, sooner or later, and one of the results of such fading was, that early cabbages were sold to some of our customers when they wanted late ones. Several of my good friends purchased tomato-plants at "A. I. Root's establishment," so as to get something that was *absolutely reliable;* and instead of getting fine large smooth tomatoes they got—what do you think?—their garden-patch filled up with great nice vines that bore *pear-shaped* tomatoes for pickling, and nothing else. I am afraid that even their broad charity for a particular friend was a little lacking this time. I told the boys on the wagon to supply them with as many tomatoes as the plants would probably have borne, and take the pear-shaped tomatoes off their hands, and sell them, if they could, at some price. This was a great deal of expense and trouble and bother, and it all happened just because a little stake with two words on was lacking; namely, "*Pear-shaped.*"

Perhaps you begin to surmise, by this time, that I have some patent-right stake and label to sell. Not quite that, but I have found a plan that pleases me very well, and I think it will please you if you follow it to the letter. First get some stakes like the one pictured below. Let them be about a foot long, and made of inch boards, so as to be two inches wide at the large end, and slanting to a sharp point at the other.*

I would have them made of pine, because pine is slow to rot.

STAKE FOR LABELING PLANTS AND VEGETABLES.

The reason why I recommend putting in so much timber is, that we have been so much annoyed by small stakes being broken off by walking over them, or by the horse or cultivator. Stakes made like the cut above, if kicked, or caught by the cultivator, will pull out, and may be put back in the ground again, but they can not well be broken. How shall we mark the stake? Have some small-sized tacks in one of your vest pockets (tinned tacks are preferred), and with your finger and thumb-nail tack the label on to the stick—I mean the label on the package of seeds. If you buy a packet of corn or peas from any of the prominent seedsmen, you will find a printed label on the inside of the bag. Tack this label around the stake, folding the paper where the tacks go through, to make it thicker under the heads. Peter Henderson uses the best and stoutest paper for his seed-bags, of any firm I have dealt with. These labels will stand on the stakes over winter, and be just as plain in the spring as they were the fall before. Not only does this label tell the *kind* of vegetable, but it tells *of whom* the seeds were purchased. When we have a crop of turnips that pleases us, it is quite a gratification to us to see the name of Peter Henderson in large black letters, so plain that you can read it from almost any part of the turnip-patch. Where shall we put this stake with its stout paper label securely fastened to it with the tinned tacks? Now, you may think this is a simple question, but it is a matter of no small moment, I tell you. Suppose you have half a dozen different kinds of strawberries in one row, to be tested. Where will you put the stake? It can not be in the middle of a dozen plants, because the stake ought to tell where one kind ends and another commences. If, however, it is placed between two varieties, should it describe the variety in front of the label, or back of it? Mr. Seth A. Bushnell, who has spent almost a lifetime among plants and fruits, originated, I believe, the plan we follow, and he tells me that the great firm of Storrs & Harrison, of Painesville, O., adopt the same plan. It is simply this: Put down your stake before you commence setting out your strawberry-plants. Let the label face you as you look at the stake, and let the plants be set behind the stake. When you have set all of that kind, push another stake in the ground, with the label facing you as before, and set the plants back of the stake as before. I may say, right here, that the stake illustrated above can be stamped into almost any good ground with the heel of the boot, deep enough to be secure. Now, then, to our stakes and labels. When you get to the end of the row, turn right about and come up on the next row, setting the stakes before you as before, *with the plants the label describes always back of the stake.* Just keep doing this, and you will have no trouble, and there will be no confusion. If, however, you get up some plan of your own which you think is simpler, you will eventually run into trouble. I have tried it a good deal. These stakes and labels will even answer for potatoes. In hilling them up, if you should cover your labels and stakes with dirt, they can be plainly read by washing or rubbing the dirt off; but any kind of pencil or ink marks would be gone under the influence of dirt and water.

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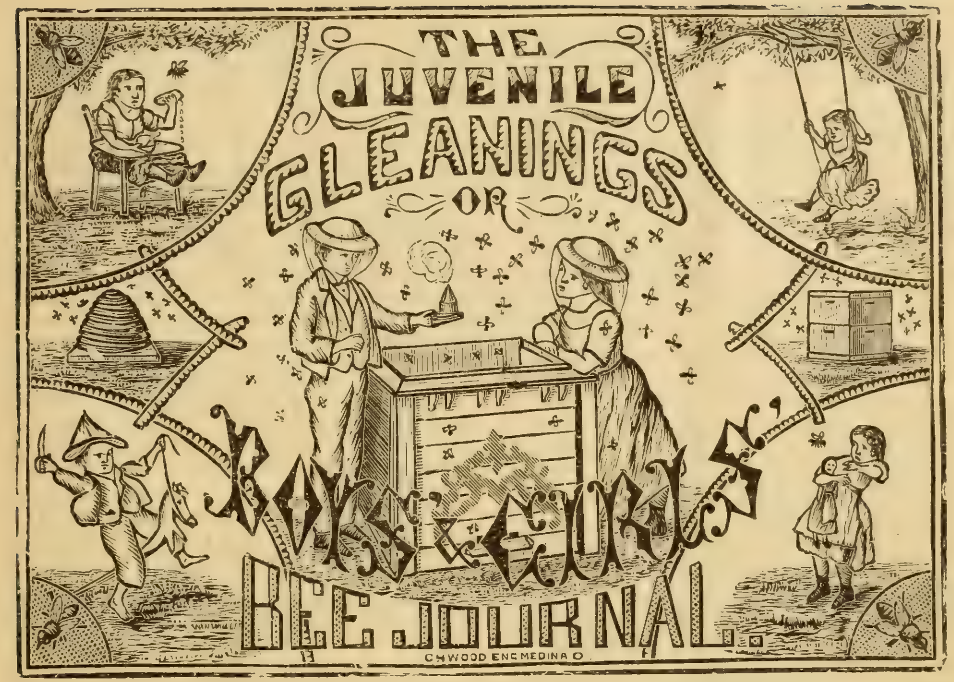
*They can be cut out with a circular saw, for 25 cts. per hundred, and probably even less stsll by the thousand.

HOW TO AVOID VACANCIES.

If one hill is missing, and other hills have more plants than are needed, choose just the right time after a rain, and transplant to fill up; but don't plant some other crop if you can avoid it. During the last season we planted white beans where our sweet corn failed. It was a bother to uncover the beans when covered by the cultivator, and it was a still harder one to gather the crop. Two very good boys went over the corn-field *twice* in order to get all the beans. But there are white beans now, dotting the ground, that have dropped out of the dried-up split pods. Had the beans been all in a patch by themselves, the boys would have gathered every pod; but scattered among the corn-stubble, they could not see them, and I don't know that I ever found a boy who could. All these things should be taken into consideration when planning our work. Make it so plain and simple that you can give orders to the different hands, almost without the possibility of a mistake or misunderstanding. Try in every possible way to avoid having things so mixed up that an old experienced *man* must be employed, in place of a comparatively cheap *boy* who will do almost as well if his work be so arranged as to make it pleasant and easy for the little fellow.

By doing every thing decently and in order, we make work pleasant and easy; but where we go ahead without system, or regard for consequences, the way is open for misunderstandings and fault-finding, and disputes in regard to whose fault it was that some accident happened. I expect, of course, you will raise your own seeds to some extent as soon as you can. How shall they be put away and labeled? In the outset, I would decide upon some special room, or part of a room, to be kept for seeds. Have it labeled "Seed-Room" so there may be no misunderstanding in regard to the locality, when you send even a child there for something. Then I would have the seed-room divided off into apartments, pigeon-holes, or something of that sort, for each separate kind of seed that you decide to handle. For peas, beans, and corn, and perhaps some other bulky seeds, you will need a sort of bin rather than a pigeon-hole. Over each of these bins, have, in plain large letters, "Peas," "Beans," "Corn," etc. When this is done each bin needs to be subdivided. If you are going to have four kinds of corn, and you can not well get along with a less number, have these subdivisions plainly labeled something as follows: Early Sweet Corn, Late Sweet Corn, Field Corn, and Pop Corn. Decide in this same way how many kinds of peas you care to handle, and have the pea-bin subdivided in the same way. I think my choice of peas, after our experience during the past season, would be something like this: Extra Early Peas, American Wonder, Stratagem, and Yorkshire Hero.

To be continued Jan. 15, 1887.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

> Whosoever shall confess me before men, him will I confess also before my Father which is in heaven. —MATT. 10:32.

IN coming home from the Michigan State Convention, on account of the extreme cold weather the trains got behind; and on striking our own Medina road, I found that our train had been gone about twenty minutes. Under such circumstances, people usually decide to wait all day at Elyria, for the evening train. I made up my mind, however, that I was going to get home before night, by hook or by crook. The station agent said there was no coal-train nor freight that I could go on. Now, one who gives up easily might have thought that *that* settled the question; but I replied that I knew there was a coal-train some time during the afternoon. He admitted it, but replied they did not stop at Medina.

"But, my friend, they can surely be prevailed upon to slack up so I can jump off somewhere in the vicinity of Medina."

He replied, that they were often desired to do that very thing, but had strict orders not to do it. Now, a good many would have said that I was shut up on that score. Not so, however. I had begun to get a little acquainted by this time. You remember what I have been saying to you about getting acquainted with people, and the advantages it gives. When we had got into conversation so he did not regard me as one of that class of people who keep continually bothering station agents with useless questions, he suggested that I might see the superintendent of the local freight, and that *he* could, if he chose, give me a line to the conductor to slack up, as requested. He further remarked, that the superintendent would be at the depot in a short time. I told the superintendent who I was, and how important it was that I should be at my place of business, and he quite good naturedly gave me the written order I so much wished.

Now, friends, when we succeed in getting something we want from a neighbor, are we always careful to express our gratitude? I thanked the superintendent, and told him that, when it should be in my power to do him or his road a favor, to bear in mind that it would afford me pleasure to return the favor just granted. Then I went to the young man who is agent, and thanked him for so very kindly taking the trouble to help me get home. By this time I felt pleasant toward almost everybody. While waiting for the train, a couple of hack-drivers came in and sat down by the stove. A couple of loungers made the company large enough so they could tell stories. The stories were principally in regard to the ability with which different personages in Elyria could drink beer and whisky, and still stand up and walk around. A young lady came in to wait for a train. The station is a very small one, at the crossing of the two roads. There was only one waiting-room for both ladies and gentlemen. Now, these boys did not smoke in the lady's presence, but they told stories that were pretty nearly as offensive to good taste as tobacco smoke; and they seemed to think, that, because the lady smiled, it gave them permission to go on. Perhaps you may ask why I did not use my influence, or what skill I possess under such circumstances, to get the boys on to some other topic. Well, my friends, I studied hard, and prayed hard, but I did not see any opening for interruption, without having them think I was a sort of crank, or eccentric personage, who wanted to boast of his own goodness and Christianity. Even though this class of boys are coarse and low-lived in their ways and talks, they are keen enough as a rule, and bright enough, to see the consistency of things, and can read a man pretty thoroughly. By the time the train came I had not scraped up grace enough to say any thing *at all* for the *Master*. I do not mean that I did just right, however, for my conscience upbraided me for not being a more faithful witness. I hardly need tell you, that, as a rule, the brakesmen, and the men who are employed to load and unload freight, are a rough, drinking, and swearing class, and I fully expected to find such for my companions in the caboose car. But I decided that I would have a little more courage, and at least make an effort to win these men just a little during my 25-mile trip in the caboose car. The car was divided into two apartments by a sort of partition in the middle. Imagine my surprise to see, hanging over the doorway between the two apartments, a little frame in which was worked, in perforated paper, the words, "In God We Trust." As a rule, these caboose cars are embellished with pictures that the railroad men manage to pick up from illustrated newspapers, or the literature of the day, and I had made up my mind that the prints that adorned these walls were probably, many of them at least, questionable in their moral tendencies. Imagine my surprise to find they were not only beautiful, but chaste and pure, every one of them; and many of them had beautiful appropriate texts just under them. The occupants of the caboose car were out in the severe cold weather, moving the cars from one track to another, so I was alone for quite a time. When they had got by the station, and rested enough so they felt like talking, I began to get acquainted. Finally I motioned toward the motto, and commenced something as follows:

"My friend, is it true that you are sailing under these colors?"

He replied, modestly, "Mr. Root, I hope it is true that I am trying to live according to that text."

"Then you are a professor of religion, are you not?"

"Yes, sir, I have been for several years a member of the Disciple Church at Lorain."

"And you manage to hang to it, even if you *are* a railroad man?"

I smiled as I caught his eye when I made the remark. He nodded, as he replied, with a smile; and then I mentioned that I had been pained to notice the swearing and intemperance that were so often connected with his line of business. He replied, "I know just how that is, Mr. Root; but nobody has ever sworn at me since I became a Christian, and I thank God that I have never sworn at anybody else."

One of his boys, who sat near me, looked up from a newspaper he was reading, and smiled in a way that seemed to say that he, too, felt proud of the example this train was setting for others on that road. We had quite a long talk. This man not only knew Fred, whom my older readers remember, but he was on the train with him at the time of Fred's death. He and Fred used to attend the meetings at Lorain, without doubt, for several told me, shortly before his sudden death, that they had been having excellent revival meetings there, and that he, with some other railroad hands, had been attending. From what this man said of Fred, I can readily imagine that Fred's influence might have had a great deal to do with what I have just been telling you, for my companion was not a Christian when Fred met his death. How often these things come up! Is it not really and wonderfully true, that bread cast upon the waters does come back after many days?

As we came up to the station I told my new friend how rejoiced I was to find that I could think that, hereafter, I had a neighbor over on one of the coal-trains that pass us daily; and not only a brother, but really and truly a brother in Christ Jesus, even though he belonged to one denomination and I another.

During our talk he mentioned to me that a station agent on a road at a town a little below Medina had started out, a few months ago, to follow the Savior. He made hard work of it, however, and after a few months he announced to the friend with whom I had been talking, that he did not see how it was possible for a *railroad* man to be a *Christian*, and so he gave it up. He did not give up being a railroad man, but he gave up trying to be a Christian, and pretty soon the company gave *him* up. So the *result* was, at least for the time being, that he was not a *railroad man* nor a *Christian* either. May God help the poor mistaken brother, wherever he may be now!

But whosoever shall deny me before men, him will I also deny before my Father which is in heaven.—Matt. 10:33.

ARTHUR'S BEES.

A Story for Boys.

BY MRS. CASTELLA WHITMAN.

Concluded.

I HAVE before stated, that this family took great pleasure in caring for bees in the past; but it really seemed as if they enjoyed it far more the present season; and if ever a plowboy welcomed the sound of the horn, which was the signal that the bees had swarmed, it was Arthur. Well do I remember one warm summer morning, after they had hived one swarm, as his father had again started to his work, that he said, "If any more come out, call 'whoopy.'" He had gone but a few rods when he heard "whoopy!" from the apiary. He could scarcely believe it real; but the issuing swarm soon convinced him, and the children enjoyed the joke very much.

Another quite eventful day was when five swarms came out in about an hour—two of them so near together that they united. The only thing that interrupted the enjoyment of that day was the mother's sick headache. I think you have already guessed that she was quite an important factor.

I can not pass this season by without relating one more incident. A certain hive, one of their best, had been watched very carefully for several days, as the bees had lain out of it, not only covering the front of the hive, but also the cap that covered the second story.

One day after dinner, while their teams were eating, Arthur, being left in charge, his father thought to call on a neighbor to see if they could get any seasoned lumber, as their own supply had become exhausted, and still no news from the hives they had ordered. The father had seemingly been gone but a short time, when the above-mentioned swarm came out. Arthur, with other members of the house, stood watching them, as they usually did, to see where they clustered; but, without any halt or warning whatever, they rose above the surrounding trees, and passed immediately over the house. The shade-trees in front somewhat retarded their progress, and caused the greater part of them to descend in order to pass under the branches. Here every possible effort was made to detain them, but to no avail. They had become so much enraged by this time that Arthur's mother was forced to retreat, while he nobly pursued them. She could not leave him thus to his fate, as it were, but soon followed on. Arthur nearly kept pace with them until they came to a thicket, which on ordinary occasions was thought impassable; but in his eagerness to follow them he said he did not even give it a thought. Soon they were in an old pasture, among scattered timber. Arthur here thought he had lost track of them, and paused for the first time. Glancing around (or, rather, above) he saw them flying about the top of a very tall tree, and soon concluded they were entering it, as only a few remained in sight. His mother, not venturing to take a bee-line, as her boy had done, went round and accidentally came across his father on his way home, so all three were soon on the spot. The tree, not being a valuable one, they received permission to cut it; and on measuring it they learned their bees had entered seventy-five feet from the ground.

Arthur and his father were obliged to spend nearly the whole afternoon in securing them; but at nightfall they had the pleasure of returning them to the apiary. This was their first experience with absconding swarms, and it was quite an experience too. Their new hives came in time to receive three small swarms. The day Arthur's father went after them to an adjoining town, Arthur took his first lesson in hiving a swarm. It was quite different from having father there, to take the responsibility. Just imagine, boys, all of you who may chance to read this, the scene on the barn floor, the afternoon these hives were brought home, for as yet they had no shop. All the male members of the household were there to lend a helping hand, the little boys from their play setting up sections, Arthur and his next younger brother from the field nailing frames together, and the father at the helm doing the more difficult part, such as nailing the hives together, putting metal corners on frames, etc. Even grandpa sat on the crate that contained the hives, watching the workmen, and it really seemed like a little factory.

Reader, I will pass on, before my story wearies you, and close the most happy and prosperous year they had yet enjoyed. Before opening another year's history I will merely say, that the road through life is as changeable as are our seasons. The long cold winter was again over. Arthur would inquire, as an occasional warm day passed, if any one had seen their bees flying; and, still later in the season, as these pleasant days grew more frequent, his anxiety increased in not seeing them out, neither answering to his accustomed tap on the hives. At last, resolved to know their destiny, the hives were opened. Imagine Arthur's surprise and grief when not a living bee could be found! This was the first and only property he ever possessed. They all had plenty of stores, and no disease seemed to have been among them, so the conclusion was that it must have been the long cold winter. Really, Arthur's father sustained the greater loss of the two, as he had been at considerable expense, feeling that he could not be at any more, under present circumstances. He kindly offered the hives to Arthur. Buoyant with hope, and the encouragement he had received from GLEANINGS, he soon sent an order for a queen and half a pound of bees. When the postal came, stating that they had arrived at the express office, Arthur was a mile from home in an opposite direction, at work with his father. His brother, being eager to carry the news, he was soon notified, and, receiving permission, he started on foot to get his coveted treasure. What a happy boy he was, as he started from the office, with bee-cage in hand, and was accosted by one and another, as, "Those are your bees, are they?" signifying that they had attracted much attention. As he neared home his steps grew slow, and the miles seemed to lengthen ; nor was it to be wondered at, as he had done nearly a day's work, and then walked about ten miles. The satisfaction of seeing his little swarm of bright Italians placed on frames in one of their new hives that had been left desolate a few months before, was sufficient recompense for all he had endured.

By watching them carefully through the summer, Arthur had as nice a colony in the fall as one could wish. But, dear reader you may rest assured that many precautions were taken to keep them through the winter. The A B C book was carefully studied, and many of the precepts in GLEANINGS were practiced.

Midwinter had now arrived, and what was Arthur's surprise when he read that the North-American Bee-Keepers' Convention met at the metropolis of his own State! What an eager expression was on his countenance, as the subject was referred to indirectly! One and another would ask if Arthur and his father thought of attending. Of course, they would be very anxious to; but, taking all things into consideration, whether it would be advisable or not was the question. Arthur's mother felt, that perhaps a golden opportunity might be lost, as, among the names of the announced speakers, were those in whom they had placed the utmost confidence—known only to them, however, by their writings. Then there was the inducement in the reduction of railroad fare and hotel-bills. All combined seemed to influence them to go, except the changeableness of the wintry weather. The decision was finally made in their favor, and willing hearts and hands soon made them ready.

A deep snow had fallen a few days previous, then a rainstorm coming on a short time before the eventful morning in which they were to start, left the roads in such a condition that they could not reach the station without being carried, at that early hour in the morning, as it was several miles distant. So Arthur's mother volunteered to act as driver. At two o'clock in the morning, Arthur, with lamp in hand, was arousing the family, and at three they were on their way to the station. They arrived in due time to attend the morning session of the convention; and to say that they enjoyed it would be but a meager expression. They met with many whose names were as familiar as household words, but their faces were as strangers.

Upon their return home they gave such an accurate description of what they saw and heard that the whole family seemed to have had the benefit of a part of it at least. The convention was the crowning enjoyment of Arthur's boyhood days; and should his success in life be even greater than a farmer-boy might anticipate, his mother will attribute it to his first swarm of bees, and the association and influence connected therewith.

I am happy to tell the readers of GLEANINGS that it was my good fortune to meet Arthur and his father and mother at the recent State Convention at Ypsilanti. I am glad the little story tells the dark side of bee culture as well as the bright. I am also glad to know that Arthur was not disheartened, even after his heavy losses. If he continues to attend conventions, and gather facts from the bee-journals, he will, without doubt, succeed. After one has successfully brought his bees through the winter once or twice, it seems to be a comparatively easy matter thereafter.

A GOOD REPORT FROM W. E. FLOWER.

THE ALLEY TRAP AND QUEEN-EXCLUDING HONEY-BOARDS.

I HAVE used half a dozen of Alley's queen-traps for two years, and they have never failed to catch the queen. I have also used half a dozen of your zinc honey-boards for the same length of time, and they have proved a grand success. With these two appliances I have no fear of swarms going to the woods, or queens getting into the sections. I don't want to puff you or Alley; but if you think it worth while I will give you a brief article describing how I use them to prevent absconding and after-swarming, and but little increase. I can and do go to church and Sunday-school every Sunday during the swarming season, and have not lost a swarm in the two years that I have used them. I don't suppose that my methods would suit either Heddon, Doolittle, or Hutchinson; but they might suit some one who, like myself, keep a few colonies, and who have to leave home to work in a factory all day, and have no time during working hours to be hunting queens, climbing trees, etc., after swarms.

Ashbourne, Pa., Nov. 6, 1886. W. E. FLOWER.

Friend F., we are very glad indeed to hear from any one who has found these helps a positive success.

JUVENILE·DEPARTMENT
F.A.W.

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

JIMMY'S SUCCESS.

AFTER the events recorded in the last issue, Jimmy went to bed, but not until he had washed the mud from his face.

"Well," he thought, as he lay in bed, "if the mud didn't do my face no good, it made pa laugh, and I guess he won't make me give up my bees after all."

His mind wandered from one thing to another. He thought what Sam would say when he heard what happened; then he wondered whether his three other colonies had enough feed. He well knew that the robbed colony was in no condition to winter.

"By cracky!" he said, almost aloud, "Mr. Green told me to open the entrance of that hive which was being robbed to-day, and I forgot it. I must do it to-night. But ma won't let me fix them up to-night."

A bright thought entered Jimmy's mind. He crawled out of bed, raised the window very carefully, and stepped out into the night air with only his night-gown on. It was chilly; "but," he thought, "it won't take me but a minute."

In a moment more the entrance was opened, and he hurried back to his window.

"Cracky!" said Jimmy, as he tried to raise it, "I forgot about that ketch when I left, and how am I to get in again?"

There was only one alternative, and that was to knock at the door. It was so chilly that Jimmy did not hesitate long, attired as he was, and gave a knock. In response, his father came to the door.

"Why, how came you there? I thought you went to bed over an hour ago," said he greatly surprised.

"Yes, I did go to bed," explained Jimmy;

"but, but, Mr. Green told me to open the entrance of one of those hives 'cause they'd die if left long, and I happen ter think of it when I got ter bed, an' I thought I'd go out the window an' not wake you and ma up. I forgot about the window-ketch, and when I came back I couldn't raise it, so I come round by the door."

Jimmy had not told the straight truth. He went out by the window because he feared his mother wouldn't let him go if he asked her permission. Jimmy would not be guilty of a lie, but lately he had got into the habit of "stretching the truth."

Jimmy had hardly finished his explanation when his mother, from the adjoining room, called out—

"What's that child been up to now, I'd like to know? Outdoors with nothin' but his night-gown on!"

Without waiting for a reply, Jimmy scampered off to his room and into bed, leaving his father to make matters right.

The next morning after breakfast, Jimmy thought he would take a look at the colony, the entrance of which he opened the night before. Most of the bees were in the bottom of the hive, and what were not dead were wet, or, as Jimmy expressed it, looked as if they had "been sweatin'."

Besides all this, the robbers were again at work; but on this occasion Jimmy had taken precaution to provide himself with a veil, which Mr. Green had given him along with the old hives. Unable to account for this peculiar condition of the bees, Jimmy scampered over to Mr. Green's.

"Hello, Jim!" said Sam, smiling, whom he met first. "You got stung, did you?"

"Where's yer pa?" said the other, without making any reply.

"Down in the lot by the creek, husking corn. Why? what do you want?"

"Oh! my bees have got to actin' up."

So saying, Jimmy started toward the creek in pursuit of Mr. Green, followed by his companion. When they had reached Sam's father, Jimmy then explained the condition he found his bees in in the morning. When he had concluded, Mr. Green then replied, "I suspect you forgot, and left the bees too long after I closed the entrance, or they would not have been in that condition. From your explanation, I judge the bees had smothered. How long was it before you closed the entrance?"

"Well," said Jimmy, willing to own up, "I forgot it, an' just before I went ter sleep I happened ter think of it, an' I got up and opened the entrance."

"What time was that, should you think?" asked Mr. Geeen.

"Oh! 'bout ten; or half-past."

"Well," said Sam's father, "that would make eleven hours; and the hive, when I closed it, was full of robbers. Besides that, the sun shone pretty hot all the afternoon; no wonder you found them as you did."

"What'll I do now?" said Jimmy.

"You say you opened the entrance this morning, and that the robbers had already commenced. I should advise you to take out the combs, if they have not melted down; brush off what bees may be on them, and carry them to some place where no robbers can get at them. Next pick up the hive and all, and dump your 'sweaty bees,' as you call them, into your other three hives—about an equal portion in each. You must do your work quickly, and you must not run if a couple of bees sting you."

"All right," said Jimmy, starting off on a run.

"One more thing," called out his teacher; "get your smoker going good, and put on your veil."

"I will," said Jimmy, and the boys were soon out of hearing.

Jimmy followed directions exactly, and, four or five hours after, reported that all was quiet; but he said his other three hives were "carrying out lots of dead bees—yes, lots of 'em."

Mr. Green told him that these were only the dead bees he had dumped in from the robbed colony. About a week later an examination into the three remaining colonies showed that the bees had done their work well, yet you could easily see that those bees which were so nearly dead were shiny black fellows, without any fuzz on their backs.

Better than all, Jimmy's father and mother had both agreed that he might keep his bees, although for some time his step-mother persisted that he should not keep them.

For the present we will leave Jimmy and his bees, and listen to what other boys and girls have to say for themselves.

CORNCOBS FOR WINTER PASSAGEWAYS.

My pa fills the tops of his hives with corncobs, for the steam to gather on, and when it gets very cold he wraps the hives with old carpet. He winters his bees out of doors. EMMA S. MYERS.

Lafontaine, Ind., Nov. 27, 1886.

A LITTLE ORPHAN BOY'S REPORT.

I am a little orphan boy. My father died six years ago, and my mother died last September. I am now staying with my uncle, and help my cousins, Gabe and Andrew, take care of their bees. They have 75 stands, which they are going to winter in the cellar. The three years they have kept bees they have lost 5 colonies in wintering. Last summer they got 1400 lbs. of comb and 300 of extracted honey from clover and raspberry. Basswood was an entire failure.

HENRY ANDERSON, age 12.

Marshville, Mich., Nov. 18, 1886.

FROM FAR-OFF NEW ZEALAND.

We are having a very wet winter, and my mamma has to feed our bees. My papa is afraid of them, so she has to manage them by herself. Sometimes our neighbor, Mr. McPherson, comes and helps her. He is very kind. He can manage bees very well. He has over twenty Langstroth hives, and he has some common boxes. Some people say, that when a bee stings any one it dies. If so, do you know how long it lives after it has lost its sting? Mamma bought three colonies of bees, and packed them herself, to come a long journey. They traveled for four miles on a dray, on a rough road, and then they were in the train for more than an hour; then in a spring cart for eleven miles, and not one of them got out. JESSIE HYDE, age 11.

Otau, N. Z., Sept., 1886.

A bee which has lost his sting, if confined in a queen-cage, will not live much over 24 hours; if allowed his liberty he will live from a week to two weeks. I would refer you to this department in back numbers of the past year for a full account of experiments upon this point.

“EGCATION.”

The following is from a little friend who evidently wrote hurriedly. As it is quite original, we insert it just as she has sent it to us. If you are careful I think you can make it out.

I seat myself to write you a few lines I went To sunday school nearly all Sumer I like to go to Meeting the meeting house is about 2 miles and a half off, Our school is a going to comenst a munday I expect To go to all winter I never went to school very much Buch but I am glad I hav As much egcation as I have Papa has nobees bu he wants To get some so I can no think of no more at presant ZYLPHA A.

“Egcation” surely is a nice thing, don't you think?

SO SICK FROM THE STINGING THAT HE COULDN'T SEE.

My papa has 2 stands of bees. He had 3 last winter, but one of them froze. Last summer, when they swarmed, they went across the railroad and settled on a willow-tree. Papa told a neighbor to jar the limb, and he hit it with the hatchet and made them mad. They stung papa, and made him so sick that he couldn't see. This summer, when they swarmed, papa put mosquito-bar over his hat. They settled in the peavines and on the ground. I like to see bees swarm, especially when they are flying in the air. ORION HUNT.

Dodson, Ohio, Nov. 16, 1886.

You do not say how your papa recovered from the stings; but I gather from your letter that he did nothing, and just let old Dame Nature take care of it itself. Am I right? It is not wise to bump a swarm off from a limb when somebody is right below them, as I infer your father was.

HUNTING BEE-TREES.

Mr. Mase makes his home with my pa. He takes GLEANINGS. I read it some, and love to hear my pa and Mr. Mase read it. One year ago last month they found seven trees in the woods, with bees in them. They made hives and put them in. When it was cold they put them in boxes and put chaff around them. They all lived, and this summer the bees made 386 lbs. of comb honey in little boxes. I help all I can. I like to use the smoker. They took three more trees up this fall, and now have 16 hives of bees. I am 7 years old. I am too young to walk 2½ miles to school, so my ma and pa teach me and my little brother at home. CORA A. BLANCHARD.

Mt. Hope, Morris Co., N. J., Nov. 2, 1886.

FRED'S COLT, AND HOW HE TRAINED HIM.

I will tell you about a horse we had, and what Fred did with him. When the colt was about one year old, Fred thought he would try to see if he could not train him a little; so he commenced by leading him up to a log, and telling him to come up on it. Fred put one foot upon it for him, and then told him to put the other one up, helping him a little. Ever since that, when he wants him to come up, all he has to do is to say, “Prince, come up,” and he will come right up. He is very pretty, dappled light and dark gray. His mother is white as snow. She is very active when hitched to a wagon. Her mane is about 3 ft. 8 inches long. Her tail comes to the ground. Her foretop comes below the end of her nose. PEARL J. CRANSTON.

Woodstock, Champaign Co., O., Nov. 12, 1886.

I almost envy friend Fred, because I have not such a nice colt. The colt's mother, too, must indeed be a beauty, with such a long silvery tail and mane.

THIEVES, AND AN OLD KETTLE.

For the last year or two the thieves have been taking grandpa's chickens; and this summer, while they were trying to raise some little chickens, as soon as they were large enough for a good fry or roast, somebody would come and take them, and have a picnic, I suppose. There is a cornfield just below his cornfield; and when the corn-cutters came to cut the corn in the field adjoining his, they (we suppose it was they) commenced on his chickens, and one night they took an old kettle that grandmother's mother gave to grandmother when she went to Iowa. Grandfather thinks it must be over one hundred years old. This is pretty old, is it not? It was a kettle that was used to cook around the fireplace. He still keeps up with the old-fashioned cooking by the fireplace. The kettle was sitting by the side of the door where they keep all of the ironware. Grandfather was 88 years old in September, and I suppose the thieves think they can do any thing they want to around here.

PERL J. CRANSTON.

Woodstock, Ohio, Nov. 21, 1886.

If I were your grandfather, I think I would try to find out who those thieves were. That old iron kettle, by this time, surely has an unwritten history.

A GOOD SCHEME.

When my pa lived out west he kept a great many bees. He would buy common black bees and transfer them into frame hives, and Italianize them, and sell them for $10.00 a colony. We are going to Tennessee in the spring, and I am going to try pa's plan. I think every little boy can make money this way. I am going to study bee culture this winter, so I shall know how to commence my business in the spring. CHARLEY F. HENRY, age 12.

Lowell, O., Nov. 25, 1886.

Good, friend Charley! When you have transferred your first one or two colonies from “old gums” into the movable-frame hive, write and tell us about it, and we will send you any 25-cent present you may choose from our premium list or price list. You must remind us of our promise, at the time of writing. We will extend this offer to any other Charley who will do the same. Go among your box-hive men, explain the new methods of securing honey, and then offer to do the job of transferring at a price you and your box-hive friend may agree upon.

OUR HOMES.

Render unto Cesar the things that are Cesar's, and unto God the things that are God's.—MATT. 22: 21.

MY mind has been of late running quite a little on this thought of getting acquainted with people; of getting acquainted with our domestic animals; of getting acquainted with vegetation and the vegetable world, and especially with plants that furnish our daily food and our luxuries. You know how much happiness I have found in getting acquainted with the strawberry, and in learning its queer and wonderful ways of propagation and growth; and since then I have told you about getting acquainted with lettuce, celery, etc. I have also spoken about getting acquainted with the small boys who oftentimes annoy us. I have recommended a regular attendance at our county and State fairs, for the reason that we may, by this means, get acquainted with people, with their work, and with their industries. I have, at different times, recommended attending bee-conventions, because of the wonderful opportunity it gives us of getting acquainted with our brother bee-keepers.

Just as we were leaving the hotel at Ypsilanti for home, friend Hutchinson came up and said, in a low tone, that he had something to say to me, just as he shook hands to bid me good-by. What do you think it was? The remark was made for my private ear; but I am sure he will excuse me for giving it to your private ear, as it came to mine. It was, in substance, this:

"Mr. Root, I have noticed that, whenever I attend a bee-keepers' convention, I go away thinking better of some one than I did when I came."

It seemed a little odd just then, to be obliged to confess that he had expressed my feelings exactly. I felt a warmer friendship and broader charity, and a real honest respect and admiration for quite a good many of the friends who were there, that I did not possess when I started on my trip to Michigan. At the same time, I felt more conscious of my own faults and shortcomings. Now, if nothing else was accomplished than just these two results I have mentioned before, can any candid man or woman come to any other conclusion than that bee-keepers' conventions are an excellent institution, and ought to be encouraged? Any thing that tends to make us love our neighbors more and ourselves less, strikes toward godliness, and strikes heavenward, does it not? Any thing that takes the conceit out of our own hearts, and helps us to "see ourselves as others see us," raises us up, does it not?

One of the best topics for discussion that came up was the matter of ripening honey. Shall we allow the bees to ripen it in the hives, or shall we throw it out of the combs before it is capped over, thus saving labor in two ways? First, because it flies out of the combs with so much less power applied to the crank of the extractor; snd, secondly, because all of the slow, dauby work of uncapping is saved. Of course, there were different opinions. Prof. Cook and good friend Muth have for years declared there was no need of waiting for the honey to be capped over; that it would ripen in crocks or large tin cans, with a cloth tied over the top, just as well as it would in the hive. Friend Cook is about as good authority on most subjects as you can find in the State of Michigan, or any other State; that is, such is my opinion. Friend Muth has handled more liquid honey than perhaps any other man in the world; and he has a reputation for handling only a good article, almost (if not quite) second to none. Notwithstanding this, I once almost ruined our honey-market by extracting honey when it was too thin, and bottling it up and putting it on the market in that shape. Friends Cook and Muth say that I ought to have left it in an open vessel until it got thick and thoroughly ripened. Friend Cook stated that his brother had, during this past season, secured 16,000 lbs. of honey by throwing it out before the combs were capped, and then evaporating it in sap-pans placed in his granary. This granary is in a very warm place, exposed to the sun's rays. To keep out the dust, the pans were covered with coarse cotton cloth. Prof. Cook pronounced the crop equal to any honey he had ever seen, and called upon Mr. John Rey, who was present, to state how it has passed among the people; for Mr. Rey had purchased the entire crop. Mr. Rey rose and stated that it pleased everywhere, and that it was the best honey he ever handled. At my suggestion a bottle of it was passed around, and I called it almost if not quite equal to our very best honey from white clover. Friend Bingham and others, however, took the opposite side of the question; and when friend B. submitted to me a jar of honey that was ripened in the hive, and bottled up as soon as extracted, I was forced to admit that it had a richness of flavor that the other honey did not. One reason, however, that the latter sample was more agreeable to my taste, was, that it had just a trace of basswood—just enough to spice it a little. Friend Bingham, as I thought, bore down on friends Cook and Muth a little too hard, and he vehemently objected to having their report published in the journals—especially in Gleanings. The point he made was this: That in many places we have, most of us, almost ruined the demand for liquid honey; but we have since pretty nearly recovered it by being very careful to furnish none but an excellent quality of nice honey, thoroughly ripened on the hives by the bees, and that, if we attempt to put off on our customers honey ripened by artificial means, we shall get into trouble again, and may be never get out of it. Novices in bee culture, and greedy, selfish men generally, will neglect to ripen the honey as thoroughly as they *might do* by artificial means, and thus do us no end of damage.

Just now an incident occurs to me that I did not mention then, but I want to mention it now: Some four or five years ago I undertook to assist the farmers in our vicinity, by taking their crop of maple syrup off their hands. I decided to buy nothing but a first-class article, and have it immediately soldered up in tin cans, so it would reach my customers with the fine aroma it possesses when properly put up. Almost immediately people urged and argued to have me purchase syrup that my better judgment decided was *too thin*. One good man, who is a professor of religion, and who stands pretty fairly in community, urged and argued so keenly that his syrup was thick enough to keep well, that I bought it. He said, that, if made any thicker, it would candy in the cans—it could not be got out, and that it was really a superior article. One of my weaknesses from childhood is, that I am easily prevailed upon, especially if I stop to talk and listen. Some of the friends may, at different times, have felt very hard because, of late, I decline long discussions. Well, one reason is, that I have found it better for all parties concerned to say *no* at the outset, even if I do make some enemies by it, than to allow myself to be persuaded contrary to my better judgment. I bought the syrup, canned it up that very same day, and it was mixed in with perhaps 200 or 300 cans. About every customer who got a can of this syrup was mad. Sometimes one would write to me, remonstrating; at other times they would say nothing. They probably bought their maple syrup and other things somewhere else next time. There has been a good deal of talk and legislation about the adulteration of syrups. I am inclined to think the maple-syrup business has been injured more by shortsighted and stingy farmers (the word "stingy" sounds a little harsh and slangy, but it seems to me it just about hits the mark) than by all the adulteration we have ever had. Good thick well-ripened syrup, like good well-ripened honey, is good when it is put up, and it is good for ten years after, or more. In fact, it is *always* good. But you don't get nearly as many gallons when you ripen it down real thick. I have mentioned this latter matter to show you that friend Bingham had a good point, and there was some reason for his bearing on hard. I have been told by those who had visited friend Bingham at his home, that he is very careful and nice about every thing he does. He believes in furnishing the best that can be produced; and when he purchases he likes to get such as he himself gives. I believe he is a jeweler by trade, and probably on this account has learned to be neat and nice about all his work, furnishing good work and getting good pay for whatever he has any thing to do with. I hope friend Bingham will excuse me for the above, but he has been somewhat criticised for what people call his odd ways, and I confess that I have myself felt tried with him, because he sticks so strongly to what I have been in the habit of calling his own notions. I felt like criticising him at that time; but I want to tell you what made me reverse my opinion very quickly. It was to see him, with such perfect self-command and pleasant good nature, drop the whole subject and pleasantly take hold of something else when he had had his "say."

Did it ever occur to you, friends, how often a hearty good laugh will wake everybody up, drown all sorts of wrong feelings that may have arisen, and restore perfect equilibrium? Well, something of the kind came in right here. It was a simple, trivial matter, but it was almost dinner time, and a good many of us had been sitting still longer than usual. We were just ripe for some thing funny, and we were ready to hurt ourselves laughing, even if it were not so very funny, after all. Did you ever see a lot of school boys and girls in just that frame of mind? Well, friend Bingham, in describing the virtues of good old honey, perfectly ripened by the bees themselves, used ripe old wine and other intoxicating liquors as examples. He dilated to such an extent on the rare virtues of a bottle of wine that for years had been kept cork downward, covered with cobwebs, and some other similar illustrations, that Prof. Cook finally called him to order, and desired him to stop using illustrations that might awaken in some of us feelings that were better allowed to slumber. The above are not the words used, but the substance. Now, when the president (Prof. Cook) got up to reply, he took up a little glass pail of honey for an illustration. Friend Cook does not often get much excited, but he was full of enthusiasm in defending his side of the question. The people of Ypsilanti had given us a very pleasant hall for our meetings. The speaker's desk was on a raised platform, one step higher than the rest of the floor. Now, the desk and chair for the president were raised still another step; and as it was well carpeted, one might forget these different steps, if he didn't take care. The president, in order to make his point plainer, attempted to step out from his desk, to get nearer his hearers. In doing so he forgot the step, and went headlong right on to the secretary, with his pail of honey. The secretary made a dodge and looked up in astonishment. Friend Cook, in regaining his equilibrium, made some more stumbles, but, of course, out of respect to our beloved president's feelings, we all of us tried to keep our faces straight. At this point friend Bingham arose, and, with great dignity, and in his inimitably dry way, borrowed a part of the president's very words, something as follows:

"Mr. President, I earnestly protest against such illustrations here before this respectable audience—illustrations that might suggest," etc.

Those who had tried to keep back the smiles a moment ago, apparently decided it was no use to try any longer, especially to think of the idea, so utterly ridiculous, as to suppose for an instant that our earnest temperance friend behind the desk could by any possibility have taken any thing that might interfere with his remarkably clear head and steady bearing. I laughed, and laughed again, every time I thought of it, until I was really afraid I should hurt myself.

Now, this good-natured pleasantry is a simple thing, yet it had much to do with the general good feeling of the meeting. There seems to be, if I have made no mistake, a general air of gentleness and good breeding among all the Michigan friends; in fact, it seems as if it were a recent growth; for over and over again, when there seemed to be a little danger that somebody's feelings would be hurt, stout and kind hearts at once rushed to the rescue, and I am sure that no one went home feeling in the least bit hurt by any thing that was said or done during the two days' deliberations. I have been in the habit of saying that it was very hard work for me to sit still during an ordinary lecture; but there I sat from morning till night, again during the evening, and again the *next day* from morning till night, and I felt sorry when the convention was over. Perhaps one reason why I enjoyed it, was because they very kindly allowed me to get up and talk myself, every little while. And now, friends, with the above preface before us I am prepared to take up the little text that appears at the head of my talk to-day.

Some time ago, friend Abbott (originator and former editor of the *British Bee Journal*) mailed me a sample of a new honey-knife he had just got out. He said they were made of the best Sheffield steel, but that, by ordering large quantities, just as we do here in the United States, he could get them at a price that would enable him to lay them down here in America so we could furnish them to the bee-friends here at a very much lower price than any thing else on our markets. As friend Abbott has paid us thousands of dollars already for bee-supplies, we felt somewhat in duty bound to trade with him when he offered something we could use. England excels the world in cutlery, I believe; and with her resources and cheap labor many things can be furnished cheaper than we can possibly get them up here. I did not, however, at once give him the order—not because the knife was not a beautiful one for the money, but because it is a copy of the Bingham & Hetherington knife, with the exception of the uncapping part of it. Now, friend Abbott has not infringed on anybody's patent, because the knife is not patented in England. I am not well enough versed in law to say whether I should be infringing or not in bringing these knives into the United States; and there is no infringing at all any anywhere, unless the patent belonging to friends B. & H. covered the plain knife without any cap-catcher. A copy of their patent-claim, procured later on, showed the patent was on the cap-catcher and on nothing else.

It did strike me at the time that it would be an act of courtesy to forbear bringing in an imported knife, evidently copied from an American knife. On the other hand, should the bee-friends in America be asked to pay a dollar for a knife which could easily be sold for two-thirds or less by getting it made in England? In such cases it is customary to say we should choose the greatest good to the greatest number. Something called my attention to other matters, and, without thinking much about it, an order was sent to friend Abbott for thirty dozen knives. The knives were advertised in our last issue. Now then: A part of my readers will doubtless take sides with me, and say that I did nothing out of the way. Another party will perhaps be surprised to hear a man like myself, who teaches morals to the people, publicly confess to having yielded to such a temptation. I think I shall join with the latter class. I am ashamed that I allowed my better judgment to be set aside in the matter, and I publicly beg pardon of friends B. and H., and promise that not a knife shall be sent out (for not one has yet been sent out in answer to the advertisement). If I can not arrange with friends B. & H. to pay a royalty for the privilege of selling a copy of their knife, or something in that line that shall have their sanction, the knives shall remain on my hands. The above course of action is very plainly the only proper one, according to the code of moral law laid down by my very self not very long ago; and even though it hits me a terrible clip right here, I think it will be well to give it again:

A. I. Root in regard to copying other people's inventions or ideas. Written Sept., 1884.

> I am very glad to note the disposition among bee-keepers, of forbearing to copy the works of each other, patent or no patent. The supply-dealer who would unhesitatingly copy something well known to be the property of another, without getting the privilege of so doing, by purchase or otherwise, would very likely lose more than he made, so strong is the disposition of our people to give honor to whom honor is due.

In the light of the above, it is not our business to inquire what features the patent covers, or, in fact, to inquire if there be a patent at all. If any of the bee-friends have introduced something to the people that no one had seen or thought of before, we should, out of courtesy, forbear to copy it, no matter how simple it may be. Honey-knives, very much like those made by friends B. & H., were sold before on the market, except that they were not ground all on one side like a chisel. Very likely the Patent-Office would not grant a patent on making any cutting tool with the above-shaped edge. But friend Bingham had a particular idea in view when he made his knife of a thick piece of steel, and ground it in this manner; besides, he has for years had undisturbed possession of the idea. Nobody has even claimed to have used the principle before, that I know of. Now, the fact that I give all my inventions to the world, and have no patents, has nothing to do with the question. I publish a journal purposely to teach, and I try hard to make the journal valuable, so that it may have a large list of subscribers. I get my pay by receiving a dollar from each of you, instead of getting it by controlling a patent. Friend Bingham does not publish a journal. He has his own methods of disposing of what belongs to him, just as I have my method. You may think it strange, when I say I did not think of having done any thing wrong until I met friend Bingham at the convention, and got acquainted with him. I did not say any thing to him about the honey-knife, because I had not considered the matter sufficiently to be able to decide what to do. As I view it, I have done wrong, and thirty dozen honey-knives shall not stand in the way one single moment. I am satisfied of what I ought to do.

Why do I make this matter public, when it might be settled in private? First, because the knives are already advertised in our journal and price list; second, because there has been hard feelings and troubles in this very matter before; and when I have publicly forgotton to follow my own teachings, I wish, just as publicly, to set an example in the way of owning up and making restitution. I wish, too, to "render unto Cesar the things that are Cesar's, and unto God the things that are God's." Attending the convention I have been telling you about has had very much to do in coming to this decision, and I think there is very much less danger of doing people injustice and wrong when we get well acquainted with them than where we do not know them, especially where they are off at a great distance. If this is true, let us get intimately acquainted. Let us attend not only conventions, but farmers' institutes, the State and county fairs, public meetings, lectures, etc.; and as the present age offers facilities that the children of men never enjoyed before, for a free and full interchange of knowledge and ideas, is it not possible that the glad millennium is coming a great deal in this way? May it not be true, that our facilities for travel, and the abundance of books and periodicals on almost every subject, are working toward the time when God's kingdom shall come, and his will be done on earth as it is done in heaven? and may it not be that the next step to be taken by us as individuals, as states, and as nations, is, in the language of our opening text, to "render unto Cesar the things that are Cesar's, and unto God the things that are God's"? May God help us to make any needed sacrifice to this end!

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

CONVENIENCES FOR THE APIARY, CONTINUED.

OUR readers are well aware that we have a large queen-trade from year to year. As we have found that from three to four hundred colonies were inadequate to supply the demand, we have been compelled to order from the South, especially in early spring. At times the influx of queens from this source exceeds the demand; and rather than let the queens lie idle—possibly die—we put them into the apiary, to do service. As might be imagined, then, our experience in

INTRODUCING QUEENS

Has been quite extensive. We can not, therefore, employ any means to this end which is not almost absolutely sure. We use exclusively the Peet process, or an introducing-cage based upon this principle of automatically releasing the queen. If, therefore, I tread a little over old ground, I do so with the intention of gathering up a few details which have never been fully described or illustrated. I shall, then, show exactly the manner of introducing with the Peet cage, together with the position of the operator. In no better way can I do this than by presenting you a picture of the modus operandi exactly as it occurred in process in our own apiary.

The cut, as you will observe, is a view up one of the avenues of our apiary, with the grapevines on either side, looking from the southwest. In the foreground is posed your humble servant, not in his Sunday go-to-meetin' clothes, but attired in his apiary garb just as you would see him when at work among the bees were you to visit our apiary. That every thing might appear easy and natural, our artist has taken the view as seen on next page. Before passing on I will ask my reader to note carefully the straw cuffs about the wrists, and the cloth broad-brim hat, as I shall, in next issue, have occasion to write an article on "dress for the apiary." With this slight digression let us hasten on.

We will presuppose that the queen, or queens to be introduced, are at hand; that we are rigged out *cap a pie*, with our bee-suit, the smoker lighted, and the hive opened as above. We will then revolve the tin points at right angles to the tin slide, not forgetting to see that the latter will slip off easily. If, from expansion of the wood, the slide should stick, with the point of a knife bend out the folds in the tin until it will slip off easily. If we do not take this precaution, after the cage has been fastened upon the combs, in case the slide should stick, the latter is liable to come out with a jerk, which may release the queen, or anger the bees. Having seen that every thing is all right we remove one of the frames and stand it leaning against the hive in such a way as not to crush a single bee, as shown in the engraving. With smoker in hand, and a few spears of grass (long timothy preferred), brush a clean place on the comb* clear of bees, using the smoker just enough to assist. This done, and the tin points revolved as before described, we proceed to push them through the combs in the manner shown. Although I do not always strike the attitude as shown, yet from convenience it is the one I usually assume when fastening the cage to the comb. While pushing the points in, it is altogether likely that a bee or two will run under when you would particularly desire him not to. A little puff of smoke will usually drive them out, then quickly push down.

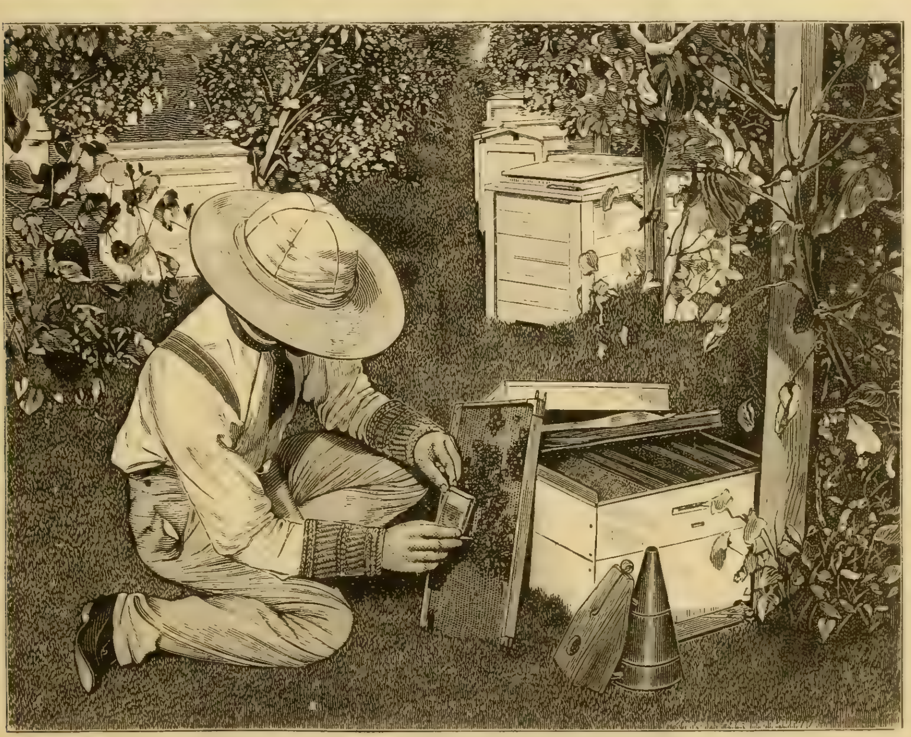
We will now carefully draw out the slide by catching the folded edge with the thumb-nail or the point of a pen-knife. Last of all we bend the points backward on the other side of the comb to clinch up securely. If we clinch the cage on the comb first, and then draw the slide, in all likelihood the operation will loosen the cage; hence we always first draw the slide and then clinch the tin points.

This is a small matter, I know; but it is just some of these little details that are often the essential elements of success. The comb, with the cage attached, we must carefully place in the hive, having previously spaced out the combs to receive it. We now space up the combs, but allow a little more room for the frame to which is fastened the cage. The little slate, or tablet, on the hive is marked, "Imp., cgd 21st," which means, in full, that on the 21st of the month we caged an imported queen in that hive. If the queen is an untested one, thus: "$1.00, cgd 25th;" if tested, "Test., cgd 29th;" if select tested, "$3.00, test., cgd 8th." The hive, as thus marked, is left for two or three days, at the expiration of which time, in the great majority of cases, the queen is automatically released without any trouble on our part. Besides this, the queen may be laying in addition. When we discover that the queen is out, and all safe, we remove the cage and mark the slate, "Imp., out 24th."

---

*I omitted to mention right here that the spot of comb selected should be old and with an even surface. The patch should also contain some cells of unsealed honey.

Without overstating, I do not think we lose one out of every fifty queens so introduced. Neighbor H., who has also had a large experience with the Peet cage, says that he can not remember that he *ever* lost a queen by the Peet process. Not only this, it has been our practice, after taking out one queen, to cage another in her place, with results as above recorded. Beginners and others, unaccustomed to the plan, will not obtain such results; but I have thus gone into details that all might profit by our experience. The whole secret of the Peet process, I think, rests in the fact that the queen can be or should be so caged as to have access to a few cells of unsealed honey, and that the bees release her *themselves*. The act of opening a hive, and disturbing its normal condition, is liable to cause the bees to ball the queen if she be released by the apiarist, which is necessary by the old methods; hence I would not encourage the beginner to release the queen in a Peet cage if she is not already liberated in two or three days by the bees, *providing* that she and her attendants still have access to a few cells of honey, and that she apparently is in good condition.



THE PEET PROCESS OF INTRODUCING QUEENS, SHOWING THE MANNER OF FASTENING THE CAGE UPON THE COMBS.

COMB-HOLDERS.

Perhaps some one may inquire why, with all our facilities, we do not hang the frame in a comb-holder, and then fasten on the cage. It is too much trouble to lug the comb-holder about; and aside from this, we can not afford the time to stop and fuss, just to hang the frame as it is in the hive. I very much prefer to lean a comb, with or without adhering bees, against the hive, as seen in the engraving. During hot sunny days, however, I am careful to lean the frame on the shady side of the hive. I can then at leisure catch and cage a queen for shipment, or introduce one.

THE KLIMITZ QUEEN-CATCHER AND INTRODUCING-CAGE.

The principle of the Klimitz cage (automatically releasing queens) is similar to that of the Peet; but instead of eating away the comb as in the Peet to gain access to the queen, the bees eat out a plug of candy.

Having put a queen in several of these Klimitz cages, I laid them directly upon the cluster of queenless colonies. The bees, in a couple of days, ate out the candy and liberated the queens, all of which were successfully introduced.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, O.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, DEC. 15, 1886.

Thou shalt not covet . . . . any thing that is thy neighbor's.—EXODUS 20:17.

HONEY RETAILED FROM FULL-SIZED L. FRAMES.

IN regard to the price received, as per page 946, last issue, friend Fradenburg replies as below:

> Referring to your foot-note on page 946, I will say that our grocer here has sold my comb honey from the L. frames at 15 cts. per lb., and sections at 18 cts., and I allowed him 15 per cent for selling. That which I took to Uhrichsville netted me 13 cts., but I believe they sold the most of it at 20 cts., so you see it is not such awful cheap honey after all, is it?
>
> Port Washington, O., Dec. 9, 1886. A. A. FRADENBURG.

THE FARM JOURNAL, OF PHILADELPHIA.

WE presume most of our friends are already acquainted with this original, crisp, go-ahead little sheet, at the low price of 50 cts. a year. If not, they had better drop a postal for a sample copy. And, by the way, we must not forget to mention that it was through the kindness of said journal that we are able to present the excellent picture of friend Terry, on page 975. The portrait first appeared in their pages, and they were kind enough to let us have an electrotype.

STATE BEE-KEEPERS' CONVENTIONS.

IF there is to be a bee-keepers' convention at Columbus, O., will some of the friends please tell us when and where, that it may be generally understood in time so we can endeavor to call out a good attendance? I confess I have been very backward in these matters; and I even omitted to mention beforehand that I expected to be present at the State Convention in Michigan. Through God's providence I am feeling unusually strong and well, and I propose to be present at the N. Y. State Association, at Albany, Jan. 11, 12, 13, 1887. If my presence can be the means of bringing the bee-friends together, and helping them to get better acquainted with each other, I mean to try to be on hand, whether I "feel like it" or not.

A DISTINGUISHED VISITOR.

WE have been enjoying a very pleasant visit of several days from Mr. James A. Abbott, son of C. N. Abbott, the originator and former editor of the *British Bee Journal*. Mr. Abbott brings with him a tin can for extracted honey, that beats the world. It can be opened and closed in an instant, and yet it is absolutely honey-tight. The different sizes nest together like our honey-pails. He also has taken our order for a honey-label in six or seven different colors, that is neater and more unique than any thing America has ever produced, so far as I know, and yet the price is so moderate we hope to be able to sell them at a price not to exceed $1.75 per 1000. The label is small. Small labels are getting to be more in vogue, especially for glass receptacles. If it were a possible thing, I tell you I would give a good round sum of money to have the readers of GLEANINGS *en masse* listen to a piece of music executed by Blue Eyes and our young friend Abbott—Blue Eyes having a piano, and Mr. Abbott a silver flute which he brought from England.

SPECIAL NOTICES.

A CARPET-SWEEPER FOR A CHRISTMAS PRESENT FOR YOUR WIFE.

I DO not know who in the world deserves a Christmas present more than the "queen of your household," as Prof. Cook puts it. And if she is in the habit of sweeping (and what household queen is not, more or less?) I do not knew of a nicer and more appropriate present than a carpet-sweeper. Price $1 50; extra decoration, and finished expressly for the holiday trade, $2.00. This latter one has a rubber band clear around the machine, so the juveniles can not bump the furniture and mar it, when they take a notion to help mamma do the sweeping.

MAPLE SYRUP FOR THE HOLIDAYS.

WE to-day bought of one of our Medina Co. farmers 88 one-gallon jugs full of maple syrup. Each jug has his name and guarantee labeled on the outside. Although it is not as light in color as some we have seen, it is quite thick, and the flavor we consider very good. It is the real old-fashioned maple molasses, such as your mother used to give you when you were a schoolboy. We can furnish it in its original shape, jug and all, for an even dollar, or we will put it in a syrup-can at the same price, if you prefer to have it shipped in that way. If you want as much as four or five gallons you had better have it in one of our shipping-cans for extracted honey. It will cost you just the same in this shape, but there will be a saving in freight.

PROF. COOK'S BOOK ON MAPLE-SUGAR MAKING.

And this reminds me that the manuscript for a little book on maple-sugar making, is now in the hands of our printers, and the author is no other than Prof. Cook himself. The book is to be profusely illustrated, and will no doubt prove a boon to thousands. Prof. Cook has a model sugar-bush of his own, and I do not think there is a single modern improvement in this wonderfully fascinating industry that he is not perfectly familiar with. The book tells how deep to bore the holes, and the reasons for it. He tells how many holes to put in a tree, the advantages and disadvantages of having the holes high up or low down. He also gives the fullest particulars in regard to producing gilt-edge maple sugar and maple syrup, with the reasons fully explained for every thing he directs. In size it will probably be about the same as Terry's potato-book, and the price will be the same; namely, 35 cents; 40 cents by mail, postpaid. If you want a copy of the book just as soon as it is out, send in your 40 cents when you are making remittances.

CONVENTION NOTICES.

The next meeting of the Sheboygan Co., Wis. Bee-Keepers' Society, will be held at Hingham, Jan. 13, 1887. MRS. H. HILLS.

The bee-keepers of the western part of Ontario, Canada, will hold a convention at Tilbury Center, Jan. 12 and 13, 1887. All are invited to attend. N. SMITH, Sec.

The Northeastern Ohio, Northern Pennsylvania, and Western New York Bee-Keepers' Association will hold its eighth annual convention in Chapman's Opera House, Andover, Ohio, on Wednesday and Thursday, January 19th and 20th, 1887. First-class hotel accommodations at $1.00 per day to those attending the convention. A general invitation is extended to all.

M. E. MASON, Andover, O., Acting Sec.
C. H. COON, New Lyme, O., Pres.

The eighteenth annual convention of the New York State Bee Keepers' Association (formerly Northeastern) will be held in Agricultural Hall, Albany, N. Y., on the 11th, 12th, and 13th of Jan., 1887. The first session will open promptly at 2 o'clock P. M. of the 11th. The Eastern New York and the New Jersey and Eastern Associations will also unite with us, thereby assuring this to be the largest, most interesting, and instructive convention ever held. No bee-keeper living within 500 miles of Albany can afford to stay at home. Questions of great importance will be discussed by many of the most noted and experienced bee-keepers in America. A grand exhibit of honey and apiarian fixtures is also promised. All implements for the apiary, sent to the Secretary, will be properly arranged for exhibition. Full programme will appear in next issue.

W. E. CLARK, Pres. G. H. KNICKERBOCKER, Sec.

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Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

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23tfdb

WANTED.—A foundation-mill, or offers, for a first-class incubator—been used three seasons.
23tfdb D. S. HALL, So. Cabot, Vt.

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H. CHAPMAN,
Versailles, Cattaraugus Co., N. Y.

P. S. See official report of the committee in next issue of GLEANINGS.